# California's Flood Future

## Recommendations for Managing the State's Flood Risk

## Attachment E:
### Existing Conditions of Flood Management in California (Information Gathering Findings)

**PUBLIC REVIEW DRAFT April 2013**

***California's Flood Future*** is provided to help inform local, State, and Federal decisions about policies and financial investments to improve public safety, foster environmental stewardship, and support economic stability

FloodSAFE CALIFORNIA

PUBLIC SAFETY ENVIRONMENTAL STEWARDSHIP ECONOMIC STABILITY

US Army Corps of Engineers ®

STATEWIDE FLOOD MANAGEMENT PLANNING PROGRAM

FloodSAFE CALIFORNIA

PUBLIC DRAFT

# Attachment E: Existing Conditions of Flood Management in CA (Information Gathering Findings)

April 2013

STATE OF CALIFORNIA
THE NATURAL RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

UNITED STATES ARMY CORPS OF ENGINEERS
FLOODPLAIN MANAGEMENT SERVICES PROGRAM

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*California Department of Conservation and Los Angeles County Department of Public Works*

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# Acronyms and Abbreviations

| | |
|---|---|
| AF | acre-feet |
| CalEMA | California Emergency Management Agency |
| Caltrans | California Department of Transportation |
| CEAC | County Engineers Association of California |
| CIP | capital improvement plan |
| CLD | California Levee Database |
| CRS | Community Rating System |
| CVFPP | Central Valley Flood Protection Plan |
| CWP | California Water Plan |
| Delta | Sacramento -San Joaquin River Delta |
| DSOD | Division of Safety of Dams |
| DWR | California Department of Water Resources |
| EAD | expected annual damage |
| EBMUD | East Bay Municipal Utilities District |
| FEMA | Federal Emergency Management Agency |
| FIRM | Flood Insurance Rate Map |
| Flood Future Report | *California's Flood Future: Recommendations for Managing the State's Flood Risk* |
| GIS | Geographic Information System |
| HAZUS | Hazards United States |
| HMP | Hazard Mitigation Plan |
| IFM | Integrated Flood Management |
| IRWM | Integrated Regional Water Management |
| IWM | Integrated Water Management |
| NFHL | National Flood Hazard Layer |
| NFIP | National Flood Insurance Program |
| O&M | operation and maintenance |
| OMRR&R | operation, maintenance, repair, rehabilitation, and replacement |
| PG&E | Pacific Gas and Electric Company |
| RCD | Resource Conservation District |
| SCE | Southern California Edison |
| SFHA | Special Flood Hazard Area |
| SFMP | Statewide Flood Management Planning |
| SMUD | Sacramento Municipal Utility District |

Acronyms and Abbreviations

| | |
|---|---|
| SPFC | State Plan of Flood Control |
| SSIA | State Systemwide Investment Approach |
| TM | technical memorandum |
| USACE | United States Army Corps of Engineers |

# 1.0 Introduction

## 1.1 Background

California is at risk for catastrophic flooding. All 58 California counties have experienced at least one flood event with significant consequences in the last 20 years, resulting in loss of life, and billions of dollars in damages. This report, *California's Flood Future: Recommendations for Managing the State's Flood Risk* (Flood Future Report), is the first product of the Statewide Flood Management Planning (SFMP) Program. The Program was developed under the FloodSAFE Initiative to expand California's flood management planning statewide. Specifically, the purpose of the SFMP Program is to make recommendations to inform flood management policies and investments in the coming decades by:

- Promoting a clear understanding of flood risks in California
- Garnering active support for partnerships at the local, tribal, State, and Federal levels[1]
- Coordinating with other California Department of Water Resources (DWR) planning efforts
- Identifying strategies and feasible next steps to better incorporate flood management into Integrated Water Management (IWM)
- Promoting an IWM approach for flood management solutions

The initial work of the SFMP Program was to collect information in support of the Flood Future Report, as well as to build unique partnerships with local flood management agencies, the County Engineers Association of California (CEAC), Federal Emergency Management Agency (FEMA), and the United States Army Corps of Engineers (USACE). Throughout the Flood Future Report, determinations about specific flood terms were made that may not represent the specific terms used by partner agencies. These are described in Textbox 1-1. A description of the Flood Future Report components, organization, and layout is provided in Appendix A.

## 1.2 Purpose

The purpose of the information gathering effort discussed in this technical memorandum (TM), presented as Attachment E to the Flood Future Report, was to gather flood management information from local, State, and Federal agencies to develop a better understanding of the existing conditions of flood management in the State of California.

In addition to compiling USACE and in-house information, DWR recognized the need to contact local agencies to collect additional information. For the first time, the SFMP Program focused on gathering information from the broad spectrum of local agencies engaged in flood management. The goal of this effort was to:

[1] Hereafter in this document, the mention of governmental agencies is implicit to include tribal entities.

- Build relationships with local flood management agencies
- Assess and document the needs and opportunities for flood management improvements statewide
- Initiate cataloging local flood infrastructure information statewide
- Identify planned/proposed flood management projects

This TM was developed to provide a detailed description of the methodology and results of the information gathering effort and to supplement information presented in the Flood Future Report. The results of the information gathering effort support the following key tasks included in the development of the Flood Future Report:

- Inventory existing infrastructure
- Assess statewide exposure to flood hazard
- Identify IWM opportunities
- Identify challenges and opportunities for flood management
- Identify finance strategies
- Develop recommendations

## 1.3 Overview of TM Organization

The following sections summarize the methodology and results of the information gathering effort:

- Section 1: Introduction
- Section 2: Methodology
- Section 3: Results of Information Gathering Effort
- Section 4: Existing Conditions of Flood Management in California
- Section 5: References

This attachment is supported by the following technical appendices:

- Appendix A: Flood Future Report Components
- Appendix B: Agency Types and Contacts
- Appendix C: SFMP Metadata Template
- Appendix D: Infrastructure Inventory Supplemental Information
- Appendix E: List of Potential Projects in California
- Appendix F: Beta Test Results
- Appendix G: Information Gathering Meeting Materials and Tools
- Appendix H: Glossary

**Textbox 1-1: Agencies Differ in Flood Terminology**

One of the challenges in a multi-agency effort is resolving language and culture differences between agencies. Staff from both USACE and DWR who are responsible for developing this report have made a conscious choice to adopt certain terminology throughout the documents.

As an example, USACE has adopted ***flood risk management*** as the term to describe a broad flood program that encompasses planning, construction, and operation, maintenance, repair, rehabilitation, and replacement (*OMRR&R*). DWR executes a similar broad program, largely through its Flood Management Division. As a result, DWR uses the term ***flood management*** in much the same way USACE uses *flood risk management*.

Another term used throughout this document is ***100-year flood*** (or some other *x*-year flood). Although these terms are commonly used, both USACE and DWR prefer using ***1 percent chance flood*** (or a 1-in-100 chance event) to describe a flood that has a 1 percent chance of occurring in any given year. However, legislative language from 2007 directing DWR to undertake new planning using bond proceeds uses 100-year flood.

For Federally funded projects, the definition of operation and maintenance (***O&M)*** includes the local entity's financial obligation to ***OMRR&R*** of the implemented project. OMRR&R is a non-Federal responsibility when local, regional and/or State entities partner on a Federal project. DWR typically uses O&M to refer simply to operation and maintenance, although repair and rehabilitation are sometimes included depending on project specifics. References to O&M provided in this report include OMRR&R responsibilities when the project is a Federal/non-Federal partnership.

For this report, both agencies agreed that, although language and cultural differences remain, it is more important to focus on the shared responsibility of performing our flood risk management or flood management missions rather than the use of specific phrases not in each agency's respective culture. A glossary is included to help the reader understand specific terms used by flood professionals and those terms that are used to define specific agency missions.

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# 2.0 Information Gathering Methodology

## 2.1 Information Gathering Task Organization

The information gathered throughout the SFMP Program serves to support the development of all the other components of the program, primarily the Flood Future Report, as shown in Figure E-1. The process used for gathering information was critical to ensuring the types of information collected could be utilized to provide a complete picture of flood management statewide.

The information was used to complete many other components of the SFMP Program, such as developing a list of planned projects that includes IWM projects, identifying risk information statewide, and identifying challenges and opportunities faced by local flood management agencies.

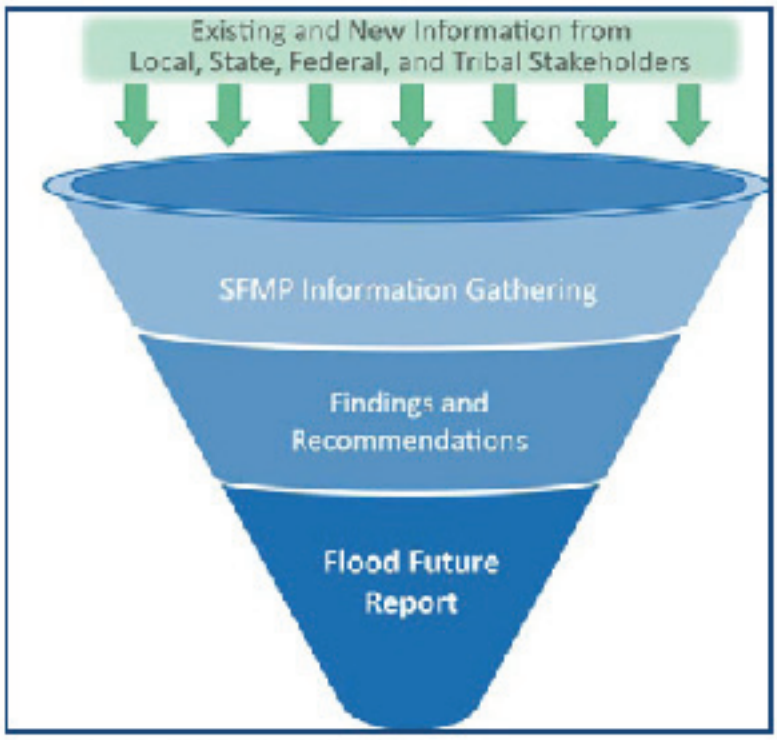


**Figure E-1. SFMP Process Flow**

Contacting local, State, and Federal agencies, as well as other stakeholders, throughout the state required extensive organization and coordination. This was accomplished by parsing the information gathering effort into three stages, as follows:

- **Stage 1:** Collection and analysis of existing information from DWR and USACE archives
- **Stage 2:** Outreach to targeted local, State, and Federal entities
- **Stage 3:** Statewide information gathering

## 2.2 Stage 1 – Gathering Existing Information from DWR and USACE

Stage 1 of the information gathering effort involved the collection, inventory, and analysis of information from archives of DWR and USACE. USACE participation included its three California districts (Los Angeles, Sacramento, and San Francisco), as well as the South Pacific Division. The SFMP project team met several times with DWR staff and the USACE district and division staff to identify relevant reports and ongoing (active) projects. In addition, the SFMP project team reviewed websites of local agencies identified by DWR and USACE for relevant information and collected information on risk, infrastructure, IWM, and finance, when it was available.

The purpose of Stage 1 was to collect as much existing information as possible prior to outreach to the local agencies during Stages 2 and 3. This ensured that the effort to collect information was not duplicated between the team and local agencies. During Stage 1, information was solicited from the following programs or groups:

- DWR managers
- DWR Division of Flood Management
- DWR Division of Safety of Dams (DSOD)
- DWR Flood Projects Office
- DWR FloodSAFE Environmental Stewardship and Statewide Resources Offices
- DWR California Water Plan (CWP) Integrated Water Management
- USACE Sacramento, San Francisco, and Los Angeles Districts

In addition, Stage 1 resulted in the compilation of several products for use during Stage 3, including the following:

- **List of dams under the jurisdiction of the DSOD** - The DSOD has jurisdiction over approximately 1,500 dams in the state. A list of dams was compiled to display possible flood-related dams owned by a local agency.
- **Map of levee infrastructure from the California Levee Database** - These data were collected under previous efforts by DWR and compiled in a Geographic Information System (GIS) in the Flood Risk Assessment and Management Office. The data included levee centerline information for the entire state. A map of the California Levee Database (CLD) entries in each respective service area was provided to each agency. The CLD is slated to become available to the public in the future (DWR, 2012a).
- **List of existing USACE reports on flooding and flood projects in California** - USACE has produced hundreds of reports on flooding and flood projects in the state. Many of these reports had been collected previously by DWR and were available in scanned image files for SFMP use.
- **Subventions projects** - The Division of Flood Management, Flood Projects Office, distributes funds to reimburse costs to local agencies for approved flood management projects in the state. DWR provided the SFMP project team with a table of projects that were eligible for subvention funding.

## 2.3 Stage 2 – Stakeholder Outreach

The purpose of Stage 2 was to involve targeted stakeholders and project partners through their existing committees and organizations. This was the first step in collecting information outside DWR's immediate resources, as described in Stage 1.

The Stage 2 process sought to maximize the initial information gathering effort by contacting multi-agency and/or multi-regional entities with known flood management responsibilities in the state. In addition, Stage 2 provided an opportunity to initiate relationship building between stakeholders and DWR, which created a basis for future interaction and cooperation throughout the SFMP effort. For example, organizations like CEAC, California Emergency Management Agency (CalEMA), and the CWP Tribal Communications Committee were initially identified for Stage 2 stakeholder outreach.

Several strategies were used to reach stakeholders in Stage 2, such as briefings at regularly scheduled stakeholder meetings, presentations for committees involved in statewide flood control, and telephone and email solicitation for information from utilities.

Specific SFMP information gathering efforts in Stage 2 included:

- Briefings at regularly scheduled meetings hosted by CalEMA and FEMA, and the CEAC Flood Control Committee
- Telephone update with the water/flood policy director for California State Association of Counties
- Presentations at the Floodplain Managers Association Annual Conference, the CWP Plenary Meeting, and the CWP Flood Caucus
- Meetings with the CWP Tribal Communications Committee and the CWP Public Policy Committee
- Telephone and email solicitation for information from California utilities, including Southern California Edison (SCE), Pacific Gas and Electric Company (PG&E), East Bay Municipal Utilities District (EBMUD), and Sacramento Municipal Utility District (SMUD)[2]
- Telephone and email solicitations for information from relevant State agencies, including DWR Integrated Regional Water Management (IRWM) and the California Department of Transportation (Caltrans)
- Telephone and email solicitations for information from relevant Federal agencies, including U.S. Forest Service and U.S. Bureau of Reclamation

[2] Note: As of this writing, the SFMP project team has not received information from SCE, PG&E, or SMUD.

## 2.4 Stage 3 – Statewide Information Gathering

The Stage 3 information gathering process started with three beta tests of the proposed approach for information gathering, followed by implementation of the statewide information gathering effort.

### 2.4.1 Beta Tests

To ensure collection of consistent, useful information during Stage 3, standardized tools, processes, and training materials for information collection were developed. Conducting trial tests (beta tests) with a small sampling of agencies allowed DWR to test the process for information gathering before sending teams to the rest of the counties. Table E-1 lists the three agencies selected for the beta test and the meeting dates.

**Table E-1. Beta Test Agencies and Meeting Dates**

| County | Agency | Hydrologic Regions | Meeting Dates |
|---|---|---|---|
| San Bernardino | San Bernardino County Department of Public Works | South Lahontan, South Coast, Colorado River | May 18, 2011 |
| Santa Clara | Santa Clara Valley Water District | San Francisco Bay, Central Coast | May 13, 2011 |
| Sonoma | Sonoma County Water Agency | North Coast, San Francisco Bay | May 16, 2011 |

As a result of lessons learned from the beta tests, the SFMP information gathering teams were trained using the refined process and toolset.

For an overview of the beta tests findings, see Appendix F. A series of technical memorandums were developed to further detail the beta test process, results, and subsequent changes made based on findings. Please refer to the SFMP Beta Test Technical Memorandums for more information.

### 2.4.2 Flood Agencies and Governance

In California, more than 1,340 local agencies have responsibility for flood management. Flood management is affected by a complex framework of public agencies with overlapping and, in some cases, conflicting mandates. Local flood agency governance structures are defined by an agency's enabling legislation, charter, ownership, or agreements with other agencies. Agencies contacted during the SFMP information gathering effort represent a broad spectrum of entities that have varying duties and responsibilities depending on jurisdiction size, location, geography, and governance.

## *Types of Flood Management Agencies*

Information gathered from agency interviews demonstrated that a broad spectrum of agencies (more than 42 different types) representing many different types of governance has responsibility for flood management in California. Given the array of agencies that have flood-related responsibilities, the complicated nature of flood management coordination is not surprising.

Responsibilities of local agencies vary with location and facility ownership. The responsibilities of flood management agencies typically include watershed management and stormwater management; management of capital improvement plans (CIPs), flood safety, dam operations and safety, operation and maintenance (O&M) of levees and pump stations, water supply, and protection of water resources. They can include coordinating with FEMA's National Flood Insurance Program (NFIP), involvement in FEMA's Community Rating System (CRS) program, and assistance with flood emergency response.

The seven primary types of agencies that have flood management responsibility include:

- Flood-control districts
- Levee districts
- Special districts
- Reclamation districts
- Cities
- Counties
- Tribal entities

Typically, counties are responsible for flood management of facilities or systems in unincorporated areas of the county, and cities are responsible for facilities within their jurisdictional boundaries. The table in Appendix B describes each of these primary types of agencies in detail. Table E-2 summarizes the number of different types of agencies identified as having some level of flood management responsibility in each hydrologic region.

This information, however, does not account for every agency that has flood management responsibility in the state; therefore, future efforts should work to identify additional flood management agency information.

**Common Types of Agencies with Flood-Related Responsibilities:**

- ✓ *Cities*
- ✓ *Counties*
- ✓ *Reclamation Districts*
- ✓ *Special Districts*
- ✓ *Tribal Entities*
- ✓ *Emergency Services*
- ✓ *County Service Areas*
- ✓ *Resource Conservation Districts*
- ✓ *Public Works Departments*
- ✓ *Water Districts/Agencies*
- ✓ *Community Services Districts*
- ✓ *Flood Control and Water Conservation Districts/Agencies*
- ✓ *Irrigation Districts*
- ✓ *Levee Districts*
- ✓ *Drainage Districts*
- ✓ *Utilities Departments*
- ✓ *Municipal Improvement Districts*
- ✓ *Storage District*
- ✓ *Planning Departments*
- ✓ *Sewer/Sanitary Departments*
- ✓ *Stormwater Departments*
- ✓ *Agricultural Department*
- ✓ *Health Districts*

…

## *Flood Management Governance*

The large number and complexity of flood management entities and their different responsibilities result in a number of challenges for planning, funding, permitting, constructing, operating, and maintaining flood management facilities. Typically,

large urban areas have flood management agencies, and rural counties or those with low exposure to flooding are often handled by emergency responders or a single contact at the county level.

Agency roles and responsibilities are both defined and sometimes limited by how the agency was formed—enabling legislation, charter, memorandum of understanding with other agencies, or ownership. This is notable because agency funding is tied to governance structure. Details regarding the relationship between funding and governance structure are provided in *Attachment I: Finance Strategies*.

Duties of flood management agencies sometimes overlap or must be coordinated with other functions. Examples of this include:

- Flood management agencies could be responsible for either managing or coordinating with surface water supply or groundwater management programs, particularly given the emphasis on IWM.
- Some agencies must coordinate with clean water programs under the jurisdiction of the National Pollutant Discharge Elimination System.
- Flood management is also part of land use planning and must be coordinated with emergency services.

**Table E-2. Types of Agencies with Flood Related Responsibilities by Hydrologic Region**

| Hydrologic Region | TOTAL | Flood-Related Special Districts | Cities | Levee District | Reclamation Districts | Tribal Entities Federally Recognized | Tribal Entities Federally Non-Recognized |
|---|---|---|---|---|---|---|---|
| Central Coast | 78 | 40 | 34 | 0 | 0 | 1 | 3 |
| Colorado River | 41 | 8 | 21 | 0 | 0 | 12 | 0 |
| North Coast | 109 | 50 | 24 | 0 | 0 | 28 | 7 |
| North Lahontan | 23 | 13 | 3 | 0 | 0 | 5 | 2 |
| Sacramento River | 326 | 173 | 49 | 9 | 61 | 28 | 6 |
| San Francisco Bay | 146 | 46 | 88 | 0 | 9 | 1 | 2 |
| San Joaquin River | 208 | 63 | 37 | 4 | 85 | 12 | 7 |
| South Coast | 265 | 58 | 181 | 0 | 0 | 22 | 4 |
| South Lahontan | 29 | 12 | 9 | 0 | 0 | 6 | 2 |
| Tulare Lake | 118 | 57 | 37 | 1 | 12 | 7 | 4 |
| TOTAL | 1,343 | 520 | 483 | 14 | 167 | 122 | 37 |

## *Conclusions*

The information gathering process confirmed that counties are an appropriate focal point for geographic flood management information. The county typically understands the duties and roles within its jurisdiction, even when it does not have

primary responsibility for a particular function. The information gathering process revealed that an array of local agencies needs to be included in the planning process to provide a more complete understanding of statewide flood management.

### 2.4.3 Statewide Information Gathering Process

#### *Organization*

Because most counties have some responsibility for flood management, the SFMP team determined that using counties as the main point of contact would facilitate collection of flood information across the state. In addition to the three agencies interviewed during the beta test process, the teams were initially assigned to meet with representatives from each of the 58 counties and from several agencies that have major flood management responsibilities (76 meetings in total).

To achieve the SFMP objective of incorporating input from local agencies across the state, the information gathering effort was divided into 12 regions. One team was assigned to each region, as shown in Figure E-2.

A 2-day training workshop was conducted on July 14 and 15, 2011, to ensure that information was gathered in a consistent manner. Workshop attendees included 38 team members, 14 DWR staff members, and 2 USACE staff representatives.

#### *List by County of Agencies Contacted*

To identify agencies to contact for SFMP information gathering, each county was queried regarding flood management operations. Additional agencies were identified in the DWR Directory of Flood Officials. Also, the counties and identified flood agencies were requested to identify other local agencies with flood management duties. At least one agency in each county was identified as having flood management responsibilities and participated in the SFMP information gathering survey.

These flood management agencies were then asked if any other entities in their counties should be included in the information gathering process. In many cases, cities, public safety departments, water supply agencies, and other flood management districts also had flood management responsibilities within county service areas. Some counties requested to have tribes and/or IRWM groups participate in the in-person meeting, along with the county's staff. These entities are marked with an asterisk as "additional agencies" in Table E-3.

As a result, a total of 142 agencies were contacted and interviewed between August and October of 2011. Table E-3 lists the agencies contacted from each county. Figure E-3 shows all the participating flood management agencies.

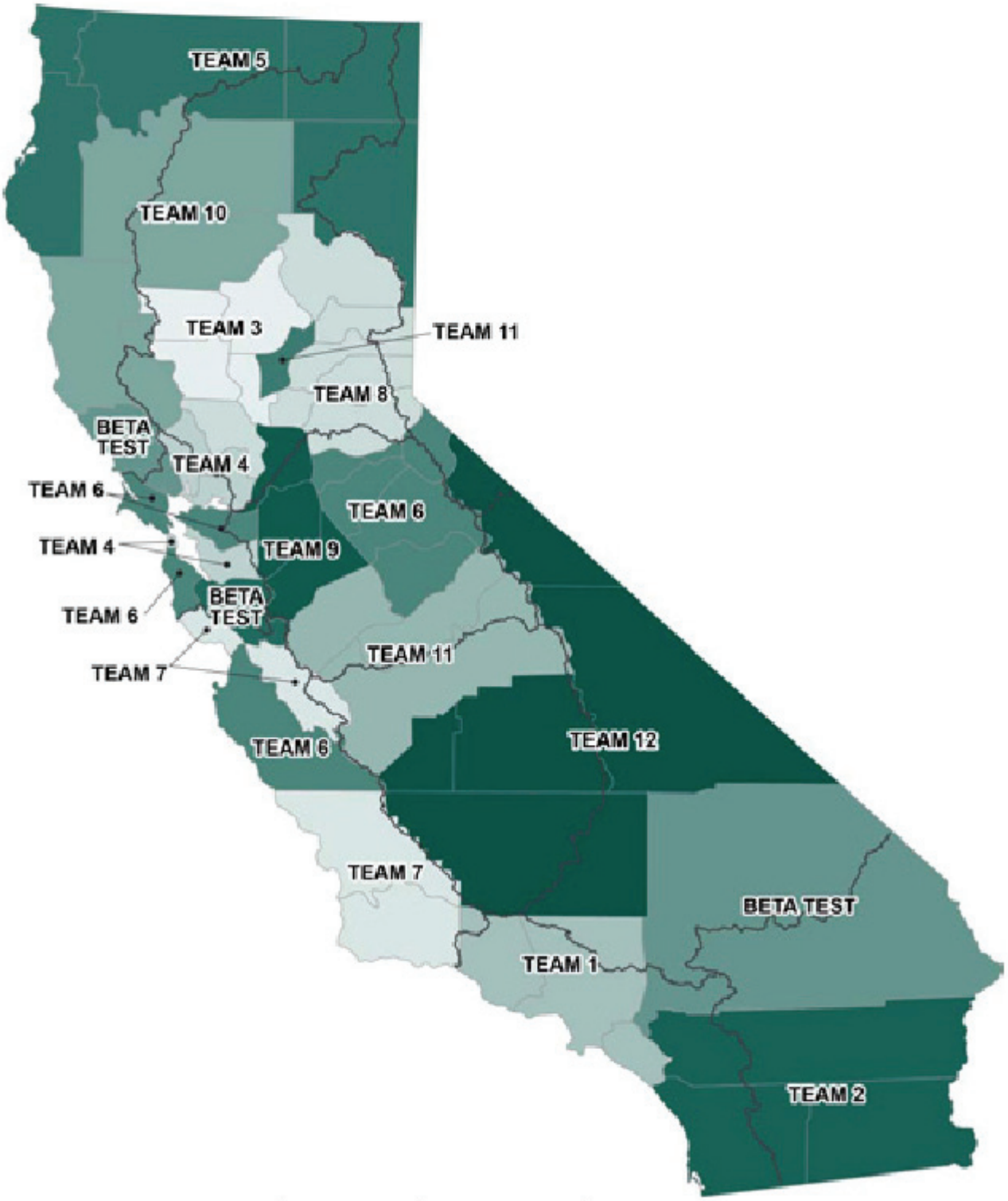


**Figure E-2. SFMP Information Gathering Regional Teams**

**Table E-3. List of Agencies Contacted by County**

| County | Agency | Hydrologic Region(s) |
|---|---|---|
| Alameda | Alameda County Flood Control and Water Conservation District<br>Alameda County – Zone 7 | San Francisco Bay, San Joaquin River |
| Alpine | Alpine County | North Lahontan, San Joaquin River |
| Amador | Amador County | San Joaquin River |
| Butte | Butte County Public Works<br>City of Chico<br>M & T Ranch<br>Sutter Butte Flood Control Agency | Sacramento River |
| Calaveras | Calaveras County<br>Calaveras County Water District* | San Joaquin River |
| Colusa | Colusa County Public Works<br>Colusa Basin Drainage District<br>Reclamation District 108/Sacramento River West Side Levee District/Knights Landing Irrigation District | Sacramento River |
| Contra Costa | Contra Costa Flood Control and Water Conservation District<br>Bethel Island Municipal Improvement District | San Francisco Bay, San Joaquin River |
| Del Norte | Del Norte County<br>Del Norte County Resource Conservation District<br>Del Norte Flood Control District*<br>Caltrans Region 1<br>5 Counties Program (Del Norte, Humboldt, Mendocino, Siskiyou, and Trinity counties)<br>Crescent City<br>Crescent City Harbor<br>Smith River Rancheria<br>Yurok Tribe | North Coast |
| El Dorado | El Dorado County | Sacramento River, San Joaquin River, North Lahontan |
| Fresno | Fresno County Public Works<br>Fresno Irrigation District<br>Fresno Metropolitan Flood Control District<br>Kings River Conservation District** | San Joaquin River, Tulare Lake |
| Glenn | Glenn County Public Works<br>City of Orland<br>City of Willows<br>Glenn Colusa Irrigation District | Sacramento River |
| Humboldt | Humboldt County Public Works Department<br>Humboldt County Office of Emergency Services*<br>Humboldt County Planning Department*<br>Yurok Indian Tribe**<br>Trinidad Rancheria<br>Blue Lake Rancheria<br>Hoopa Valley Tribe Office of Emergency Services<br>Caltrans Region 1 Highway Hydraulics and Maintenance**<br>Humboldt Bay Municipal Water District<br>City of Arcata<br>City of Eureka | North Coast |

**Table E-3. List of Agencies Contacted by County**

| County | Agency | Hydrologic Region(s) |
|---|---|---|
| Imperial | Imperial County<br>Imperial Irrigation District | Colorado River |
| Inyo | Inyo County - Public Works<br>Inyo County - Sheriff*<br>Los Angeles Department of Water and Power** | South Lahontan |
| Kern | Kern County Water Agency<br>County of Kern<br>City of Bakersfield<br>Semitropic Water Storage District<br>Kern Delta Water District<br>North Kern Water Storage District<br>Indian Wells Valley Watershed Coordinator/Eastern Kern County Resource Conservation District (RCD) | Tulare Lake |
| Kings | Kings County<br>Kings River Conservation District<br>Kaweah Delta Water Conservation District<br>City of Avenal<br>Lower Tule River Irrigation District | Tulare Lake |
| Lake | Lake County Flood Control and Water Conservation District | North Coast, Sacramento River |
| Lassen | Lassen County<br>City of Susanville<br>Susanville Rancheria | Sacramento River, North Lahontan |
| Los Angeles | Los Angeles County Department of Public Works<br>City of Lancaster<br>City of Los Angeles<br>City of Palmdale | South Coast, South Lahontan |
| Madera | Lower San Joaquin Levee District<br>Madera County Flood Control and Water Conservation District<br>Chowchilla Red Top Conservation District | San Joaquin River |
| Marin | Marin County Flood Control and Water Conservation District<br>City of Corte Madera<br>City of Mill Valley<br>City of San Rafael<br>City of Sausalito<br>City of Tiburon<br>City of Novato | San Francisco Bay, North Coast |
| Mariposa | Mariposa County | San Joaquin River |
| Mendocino | Mendocino County Water Agency | North Coast |
| Merced | Merced County Public Works<br>Merced Irrigation District | San Joaquin River |
| Modoc | Modoc County<br>City of Alturas<br>Central Modoc Resource Conservation District | North Coast, North Lahontan, Sacramento River |
| Mono | Mono County<br>Town of Mammoth Lakes<br>Los Angeles Department of Water and Power** | South Lahontan |
| Monterey | Monterey County Water Resources Agency | Central Coast |
| Napa | Napa County Flood Control and Water Conservation District | San Francisco Bay, Sacramento River |

**Table E-3. List of Agencies Contacted by County**

| County | Agency | Hydrologic Region(s) |
|---|---|---|
| Nevada | Nevada County | Sacramento River, North Lahontan |
| Orange | Orange County Public Works<br>Santa Ana River Flood Protection Agency | South Coast |
| Placer | Placer County Flood Control and Water Conservation District | Sacramento River, North Lahontan |
| Plumas | Plumas County Public Works<br>Feather River Coordinated Resource Management<br>Plumas County Flood Control and Water Conservation District | Sacramento River |
| Riverside | Riverside County Flood Control and Water Conservation District<br>Coachella Valley Water District | South Coast, Colorado River |
| Sacramento | Sacramento County Department of Water Resources<br>American River Flood Control District<br>Sacramento Area Flood Control Agency<br>City of Sacramento | Sacramento River, San Joaquin River |
| San Benito | San Benito Water District | Central Coast, Tule Lake |
| San Bernardino | San Bernardino County Department of Public Works (Beta Test) | South Lahontan, South Coast, Colorado River |
| San Diego | San Diego County Flood Control District<br>City of Chula Vista<br>City of Coronado<br>City of El Cajon<br>City of Imperial Beach<br>City of Oceanside<br>City of San Diego<br>City of San Diego Storm Water Division*<br>City of Vista | South Coast, Colorado River |
| San Francisco | San Francisco City and County<br>San Francisco Department of Public Works | San Francisco Bay |
| San Joaquin | San Joaquin County Flood Control and Water Conservation District<br>San Joaquin Area Flood Control Agency<br>Stockton-East Water District | San Joaquin River |
| San Luis Obispo | San Luis Obispo County Flood Control and Water Conservation District | Central Coast, Tule Lake |
| San Mateo | San Mateo County<br>San Francisquito Creek Joint Powers Authority | San Francisco Bay, Central Coast |
| Santa Barbara | Santa Barbara Flood Control and Water Conservation District | Central Coast |
| Santa Clara | Santa Clara Valley Water District (Beta Test)<br>San Francisquito Creek Joint Powers Authority** | San Francisco Bay, Central Coast |
| Santa Cruz | Santa Cruz County Flood Control and Water Conservation District | Central Coast |
| Shasta | Shasta County Water Agency | Sacramento River |
| Sierra | Sierra County | Sacramento River, North Lahontan |
| Siskiyou | Siskiyou County<br>Town of McCloud | North Coast, Sacramento River |
| Solano | Solano County Water Agency<br>Reclamation District 2068 | San Francisco Bay, Sacramento River |
| Sonoma | Sonoma County Water Agency (Beta Test) | North Coast, San Francisco Bay |

**Table E-3. List of Agencies Contacted by County**

| County | Agency | Hydrologic Region(s) |
|---|---|---|
| Stanislaus | Stanislaus County Public Works<br>Turlock Irrigation District | San Joaquin River |
| Sutter | Sutter County<br>Sutter Butte Flood Control Agency** | Sacramento River<br>Sacramento River |
| Tehama | Tehama County Flood Control and Water Conservation District<br>City of Corning<br>City of Red Bluff<br>Gerber/Las Flores Community Services District | Sacramento River |
| Trinity | Trinity County Planning Department<br>Trinity County Department of Transportation*<br>Trinity River Restoration Program<br>5 Counties Program (Del Norte, Humboldt, Mendocino, Siskiyou, and Trinity counties)** | North Coast |
| Tulare | Tulare County Flood Control District | Tulare Lake |
| Tuolumne | Tuolumne County<br>City of Sonora | San Joaquin River |
| Ventura | Ventura County Watershed Protection District<br>Ventura County Public Works | South Coast, Central Coast, Tulare Lake |
| Yolo | Yolo County Flood Control and Water Conservation District<br>Yolo County Service Area No. 6*<br>Yolo County<br>City of Woodland<br>City of West Sacramento<br>West Sacramento Flood Control Agency | Sacramento River |
| Yuba | Yuba County Water Agency<br>Three Rivers Levee Improvement Authority<br>Yuba County Public Works | Sacramento River |

* – Department or Part of another agency

**- Agency attended more than one meeting

**Figure E-3. SFMP Participating Flood Management Agencies**

### *Information Gathering Tools*

A survey packet containing eighteen questions, developed and refined during the beta tests, were used by the SFMP regional teams to gather information from local agencies regarding a range of topics related to flood control. These questions, along with relevant fact sheets, were provided to the agencies for the information gathering meeting. The information gathering tools and tables can be found in Appendix G.

As information was collected, it was listed on a template set up specifically for that purpose. This searchable spreadsheet provided a uniform system for categorizing various types of information from across the state. The template included the following four sections:

1. Agency Contact Record – Records the information for each contact made at an agency.
2. Existing Documents Table – List of all documents collected during the information gathering process.
3. Financing Strategies – List of financing strategies used by the agency to fund flood management projects (capital projects and O&M).
4. List of Agency Recommendations – List of opportunities, challenges, and recommendations for addressing issues related to flood management.

The collected documents were reviewed to determine if they were relevant to the SFMP Program. Once all the information was collected, it was reviewed in depth and categorized into one of the following groups:

- List of information
- List of infrastructure
- List of proposed flood management (FM) projects
- Summary of types of financing
- Risk evaluation table
- List of local agency recommendations

Documents from these categories were transferred to the metadata template—a searchable database tool enabling the documents to be stored and displayed geographically on DWR's Flood Risk Document System website. See Appendix C for an example of the metadata template. The metadata template consists of two sections:

1. Existing Documents Table – A filtered list of existing documents to be used in the risk, integrated water management (IWM), infrastructure, or finance portions of the SFMP Program. Examples of these documents include feasibility studies and studies performed by other agencies, reconnaissance information, and information about projects that are currently under design or construction, or that have already been built.
2. Integrated Flood Management (IFM) Table – This list consists of flood management and IWM (formerly termed IFM during the process) projects proposed by agencies, including details such as project purpose, status, funding source, and cost (if available) from the agency interviews, capital improvement plans, and IRWM Plans.

## *Information Gathering Process*

After receiving assignments and training, the information gathering regional teams began contacting the agencies. Once the appropriate staff within the agency was known, a pre-meeting conference call was set up to explain the SFMP Program, outline what would be discussed in the meeting, and encourage the agency to begin gathering information. The regional team researchers prepared for the meetings by conducting background research from the information collected during Stage 1.

During the in-person meetings, the agencies described their roles and responsibilities with respect to flood management. Most of the meeting was dedicated to the information gathering checklist—a list of 18 questions regarding the range of issues addressed in the SFMP Program (see Appendix G.10). Agencies provided information and shared their concerns and recommendations. Notes from the meeting and the agency's responses to the checklist questions were recapped in a meeting summary. Documents and information collected during and after the meeting were added to the information gathering template. Throughout this process, meeting documentation and collected information were uploaded to the DWR LifeRay website. LifeRay is a content management system where information for the entire state was stored.

As a final step in the information gathering process, 40 experts on California flood management were interviewed for their insights to improving statewide flood management. Information gathered from all agencies was tabulated and synthesized, then returned to the various agencies for verification and augmentation.

Once the information was reviewed and finalized, the SFMP team summarized the statewide information and provided it to the project team for use in the other components of the Flood Future Report (e.g., risk information inventory, finance strategies, IWM, and opportunities and challenges). Section 3 of this TM broadly summarizes this information. Detailed information and analysis are provided in other Flood Future Report attachments. Figure E-4 illustrates the Stage 3 Information Gathering Process, from preparation to processing of gathered information.

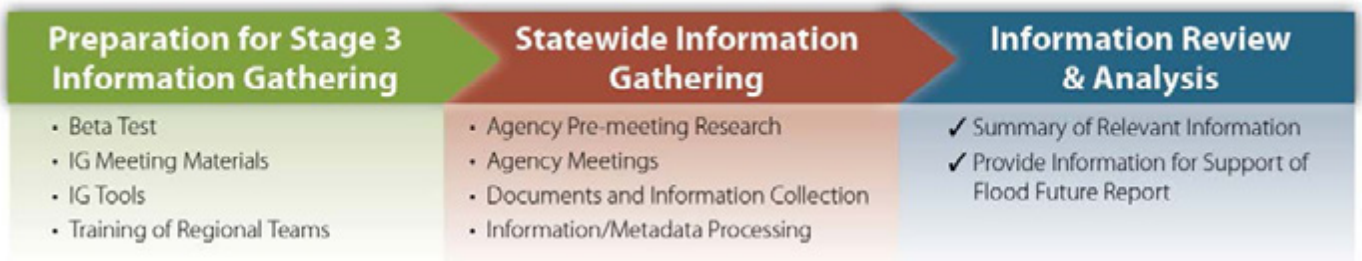


**Figure E-4. Stage 3 Information Gathering Process Flow**

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# 3.0 Results of Information Gathering Process

## 3.1 Flood Infrastructure

### 3.1.1 Infrastructure Information Sources

#### *California Levee Database*

The initial step in quantifying and identifying existing flood management infrastructure in the state was merging the information held in the CLD into the SFMP information gathering process. Starting in 2005, partnering with FEMA under the auspices of the FEMA Map Modernization Management Support program, DWR started assembling critically needed information on ownership, location, and risk assessment factors for California levees. Recognizing that Federal agencies are engaged in similar work, DWR is actively participating on national committees organized by FEMA and USACE to ensure compatibility and coordination with other efforts. This will help standardize flood management infrastructure mapping in California.

Major features of the CLD include the following:

- Levee centerlines for both Federal/State project levees and non-project levees. The project levees use surveyed levee centerlines from USACE's National Levee Database. The non-project levees were identified using U.S. Geological Survey topographic quadrangle maps (Digital Raster Graphics) (USGS, 2012) and FEMA Flood Insurance Rate Map (FIRM) panels (FEMA, 2012).
- Boundaries, such as those of levee districts, State levee maintenance areas, cities, Federal congressional districts, State assembly districts, and hydrologic sub-basins.
- Feature locations, such as those of boreholes, burrow sites, cross sections, encroachments, high-water marks, levee stress, levee failures, and levee relief wells.

These features are refined and populated for all identified levees in California as updated information is available. The levee infrastructure defined in the CLD does not consider the status of accreditation by FEMA. In fact, the CLD includes some agricultural canal levees, railroad grades, and embankments that control water runoff but might not meet the strict definition of "flood control levees." The current status and conditions of the levees were not considered in the initial inventory of statewide infrastructure.

#### *Additional GIS Mapping Information*

During the information gathering process, agencies in 15 counties provided flood infrastructure mapping in GIS format. However, in all cases, the GIS data were incomplete and did not represent a comprehensive inventory of existing facilities across the county.

To capture a more comprehensive inventory of infrastructure, the GIS information provided in the CLD and by the local agencies was further supplemented by the National Flood Hazard Layer (NFHL). The NFHL is a computer database that contains the flood hazard map information from FEMA's Flood Map Modernization program. These map data are from Digital Flood Insurance Rate Map databases and Letters of Map Revision. Infrastructure included in the NFHL database includes dams, weirs, levees, flood control structures, and dikes.

### *Printed Maps*

To further supplement the inventory, printed maps of existing infrastructure were compiled and reviewed. These printed maps were either collected directly from the agencies or were extracted from reports and planning documents. More than 200 printed maps were collected from agencies in 43 counties during this effort. Figure E-5 shows which counties contained printed and GIS flood infrastructure mapping provided by the interviewed agencies. From the figure, it is evident that several counties do not have a mapped inventory of flood control infrastructure at this time.

### *DWR Division of Safety of Dams*

Although the inventory of dams shows more than 1,500 dams and reservoirs across the state, few function primarily as flood control structures. These structures vary in type of construction, capacity, and purpose. Many of these structures are multipurpose, serving other functions in addition to flood control, such as debris control and water storage.

## 3.1.2 Infrastructure Overview

Table E-4 lists the dams and reservoirs that have a flood management function statewide with capacities of more than 100,000 acre-feet (AF). Appendix D provides a full list of infrastructure. The combined total of GIS information from the CLD, individual agencies, and the NFHL for each hydrologic region is shown in Table E-5. Map-based figures showing the infrastructure in each hydrologic region are also included in Appendix D. Figure E-6 shows locations of GIS-mapped infrastructure across the entire state.

Because of the fragmented ownership of infrastructure, no single agency in any county was familiar with all existing infrastructure across their respective county. In many cases, agencies did not even have a complete inventory of infrastructure that they owned and/or maintained. For these reasons, the numbers shown in Table E-5 and on the hydrologic region figures in Appendix D are not necessarily representative of all existing infrastructure.

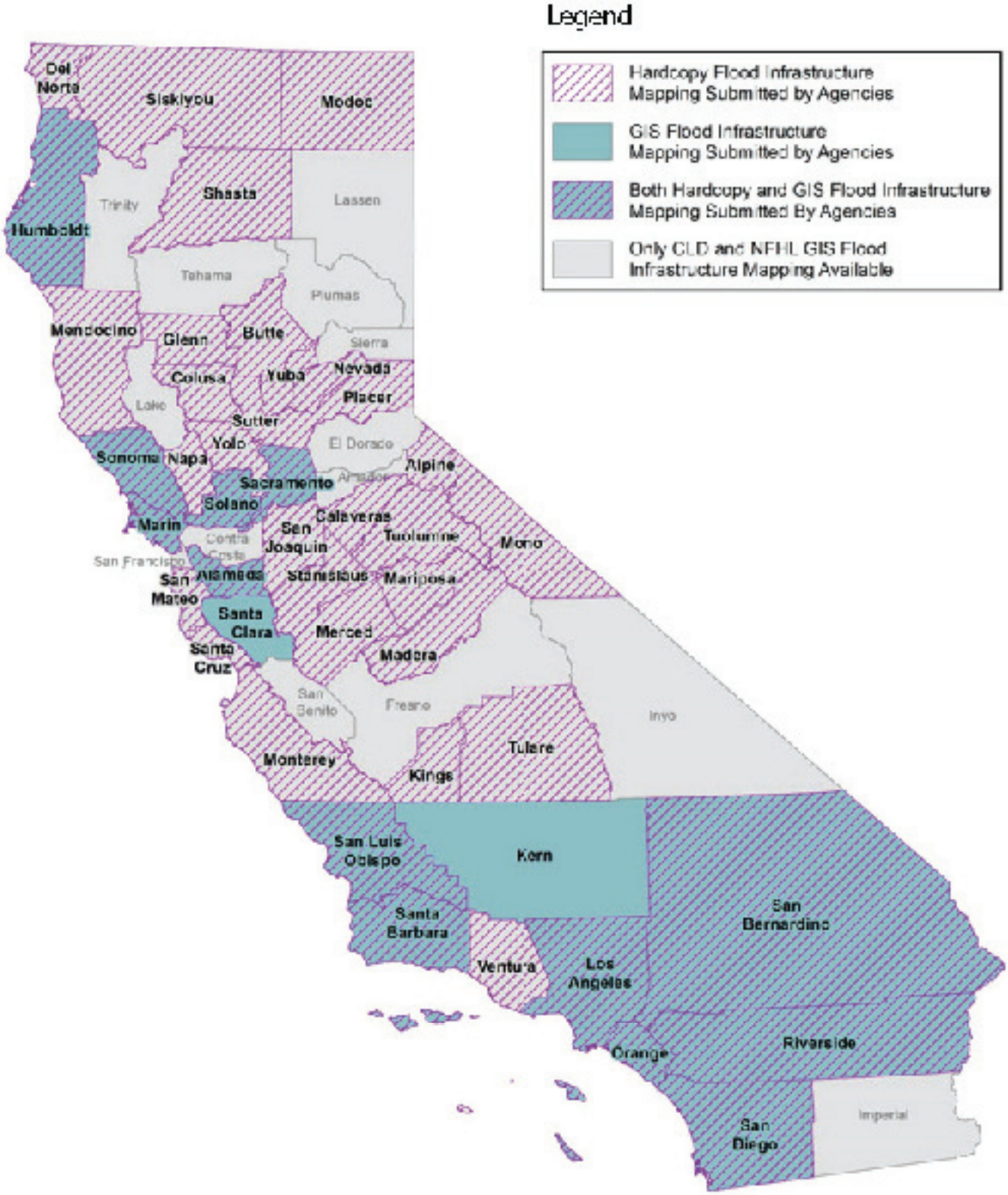
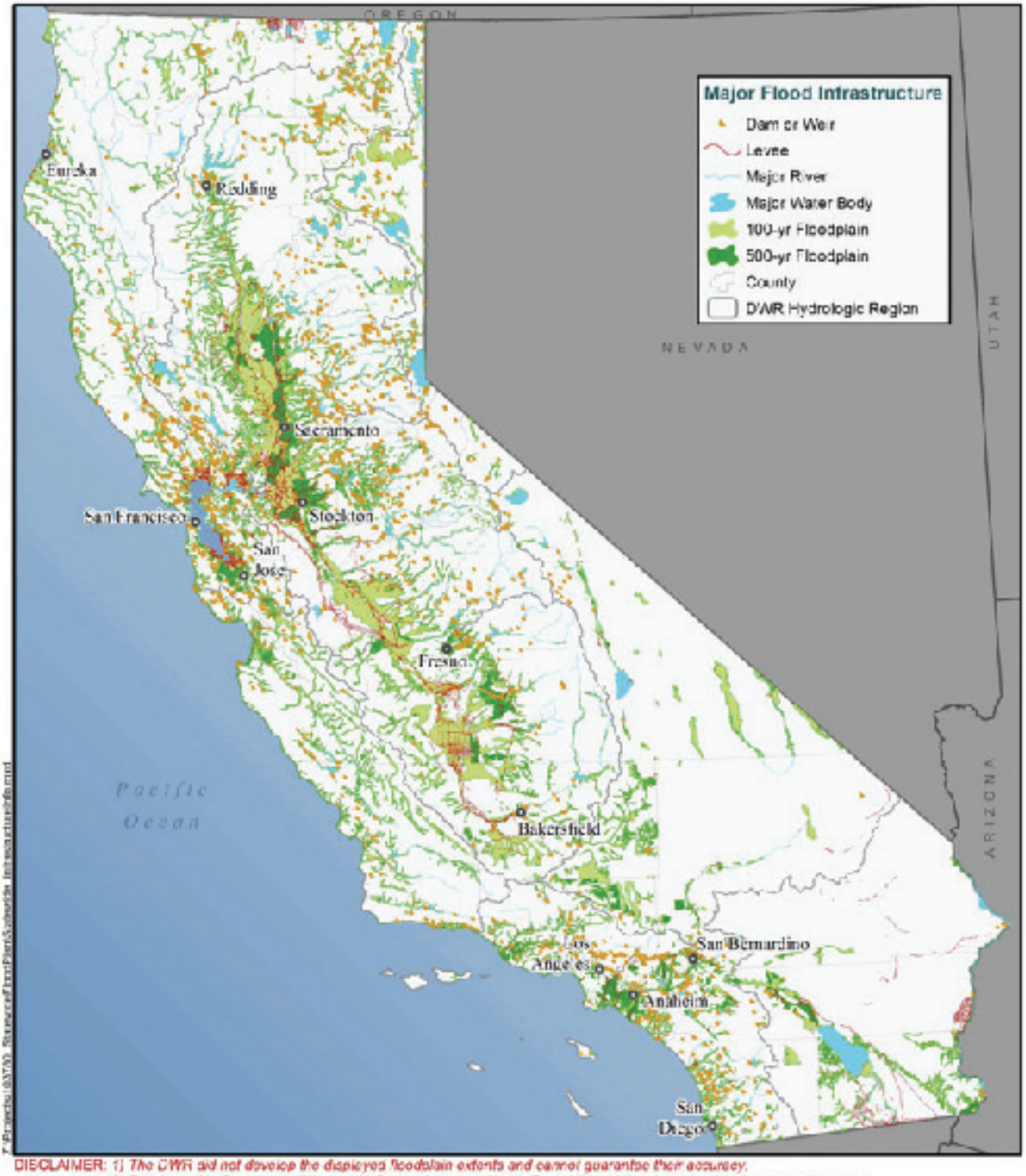



**Figure E-5. Flood Infrastructure Data Provided by County**




DISCLAIMER: 1) The DWR did not develop the displayed floodplain extents and cannot guarantee their accuracy.
2) Due to scale of map, not all types of infrastructure are shown. For additional detail, see regional and county maps.

**Figure E-6. Statewide Flood Management Infrastructure**

**Table E-4. List of Reservoirs with Flood Management Function and a Capacity of 100,000 AF or More**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Shasta Dam | Dam | Shasta Lake | Department of Interior, Bureau of Reclamation | Shasta | Sacramento River | 1945 | 4,661,860 | Sacramento River |
| Oroville Dam | Dam | Lake Oroville | California Department of Water Resources | Butte | Feather River | 1968 | 3,537,577 | Sacramento River |
| New Melones Dam | Dam | Melones Lake | Department of Interior, Bureau of Reclamation | Calaveras/Tuolumne | Stanislaus River | 1979 | 2,870,000 | San Joaquin River |
| Trinity Dam | Dam | Trinity Reservoir | Department of Interior, Bureau of Reclamation | Trinity | Trinity River | 1962 | 2,760,870 | North Coast |
| Folsom Dam | Dam | Folsom Lake | Department of Interior, Bureau of Reclamation | Sacramento | American River | 1956 | 1,120,000 | Sacramento River |
| Pine Flat Dam | Dam | Pine Flat Lake | USACE | Fresno | Kings River | 1954 | 1,000,000 | Tulare Lake |
| Isabella Dam | Dam | Isabella Lake | USACE | Kern | Kern River | 1953 | 568,000 | Tulare Lake |
| Friant Dam | Dam | Millerton Lake | Department of Interior, Bureau of Reclamation | Fresno/Madera | San Joaquin River | 1942 | 555,500 | San Joaquin River |
| Camanche Dam | Dam | Camanche Reservoir | East Bay Municipal Utility District | San Joaquin | Mokelumne River | 1963 | 417,120 | San Joaquin River |
| Twitchell Dam | Dam | Twitchell Reservoir | Department of Interior, Bureau of Reclamation | San Luis Obispo, Santa Barbara | Cuyama River | 1958 | 398,120 | Central Coast |
| Castaic Lake Dam | Dam | Castaic Lake | California Department of Water Resources | Los Angeles | Castaic Creek | 1973 | 323,700 | South Coast |
| New Hogan Dam | Dam | New Hogan Lake | USACE | Calaveras | Calaveras River | 1963 | 317,100 | San Joaquin River |
| Cache Creek Dam | Dam | Clear Lake | Yolo County Flood Control & Water Conservation District | Lake | Cache Creek | 1914 | 315,000 | Sacramento River |
| Indian Valley Dam | Dam | Indian Valley Reservoir | Yolo County Flood Control & Water Conservation District | Lake | North Fork Cache Creek | 1976 | 300,000 | Sacramento River |
| Prado Dam | Dam | Prado Reservoir | USACE Los Angeles District | Riverside | Santa Ana River | 1941 | 295,581 | South Coast |
| Casitas Dam | Dam | Lake Casitas | Department of Interior, Bureau of Reclamation | Ventura | Coyote Creek | 1959 | 287,000 | South Coast |
| Stampede Dam | Dam | Stampede Reservoir | Department of Interior, Bureau of Reclamation | Sierra | Little Truckee River | 1970 | 280,250 | North Lahontan |
| Whiskeytown Reservoir | Reservoir | Clair A. Hill Whiskeytown Lake | Department of Interior, Bureau of Reclamation | Shasta | Clear Creek | 1963 | 276,117 | Sacramento River |
| Bradbury Dam | Dam | Cachuma Reservoir | Department of Interior, Bureau of Reclamation | Santa Barbara | Santa Ynez River | 1953 | 239,200 | Central Coast |
| Union Valley Reservoir Dam | Dam | Union Valley Reservoir | Sacramento Municipal Utility Dist | El Dorado | Silver Creek | 1963 | 230,000 | Sacramento River |
| Long Valley Dam | Dam | Lake Crowley | City of Los Angeles | Mono | Owens River | 1941 | 183,465 | South Lahontan |
| Pyramid Dam | Dam | Pyramid Lake | California Department of Water Resources | Los Angeles | Piru Creek | 1973 | 180,000 | South Coast |
| Mojave Dam | Dam | Mojave Reservoir | USACE Los Angeles District | San Bernardino | West Fork Mojave River | 1971 | 179,400 | South Lahontan |
| Coyote Valley Dam | Dam | Lake Mendocino | USACE San Francisco District | Mendocino | East Fork Russian River | 1959 | 155,500 | North Coast |
| Buchanan Dam | Dam | H.V. Eastman Lake | USACE | Madera | Chowchilla River | 1975 | 150,000 | San Joaquin River |
| Shaver Lake Dam | Dam | Shaver Lake | Southern California Edison Company | Fresno | Stevenson Creek | 1927 | 135,283 | San Joaquin River |
| Camp Far West Dam | Dam | Camp Far West Reservoir | South Sutter Water Di | Yuba | Bear River | 1963 | 104,500 | Sacramento River |
| Calaveras Dam | Dam | Calaveras Reservoir | City and County Of San Francisco | Alameda | Calaveras Creek | 1925 | 100,000 | San Francisco Bay |
| Los Vaqueros Dam | Dam | Los Vaqueros Reservoir | Contra Costa Water District | Contra Costa | Kellogg Creek | 1997 | 100,000 | San Joaquin River |
| Santa Felicia Dam | Dam | Lake Piru | United Water Conservation District | Ventura | Piru Creek | 1955 | 100,000 | South Coast |

*Source: DWR, 2013*

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**Table E-5. Summary of Flood Management Infrastructure Inventory by Hydrologic Region**

| Hydrologic Region | Inventory of Infrastructure[a] | | | | |
|---|---|---|---|---|---|
| | Miles of Levee | Miles of Flood Control Structure | Number of Dams and Reservoirs | Number of Debris Basins | Number of Pump Stations |
| Central Coast | 260 | 34 | 80 | 211 | 2 |
| Colorado River | 1,831 | 116 | 20 | 10 | - |
| North Coast | 1,242 | 15 | 129 | - | - |
| North Lahontan | 25 | - | 70 | - | - |
| Sacramento River | 3,677 | 206 | 434 | 28 | 156 |
| San Francisco Bay | 2,710 | 594 | 190 | 43 | 20 |
| San Joaquin River | 4,758 | 30 | 245 | - | 6 |
| South Coast | 1,148 | 1,912 | 263 | 557 | 172 |
| South Lahontan | 244 | 4 | 46 | 270 | - |
| Tulare Lake | 4,095 | 98 | 52 | - | - |

[a]Quantity of facilities represents only the information gathered from CLD, local agencies, and NFHL; the numbers do not represent all existing flood infrastructure facilities.

*Source: DWR, 2012a*

## 3.1.3 Flood Infrastructure Maps by County

Flood infrastructure maps for each county are included in *Attachment D: Summary of Exposure and Infrastructure Inventory by County*. These maps include local agency GIS mapping where it was supplied in addition to the CLD and the FEMA NFHL; therefore these maps do not represent all existing flood infrastructure for the respective county. The information provided in the printed maps is not shown on the flood infrastructure maps. Digitizing and geo-referencing the information in the printed maps was not performed as part of the SFMP effort because of the cost and time requirements associated with verifying infrastructure locations. The countywide maps in Attachment D include information regarding floods of record, types of flooding, floodplain delineation for the 100-year and 500-year events, and county statistics from the 2000 census. Detailed information regarding floods of record is provided in *Attachment C: California Flood History*.

## 3.1.4 Infrastructure Information Future Coordination

Between DWR and FEMA, six programs are currently underway to improve the quality of floodplain mapping and flood risk data statewide. These programs include:

- Central Valley Floodplain Evaluation and Delineation
- Alluvial Fan Floodplain Evaluation and Delineation
- Awareness Floodplain Mapping
- Central Valley Flood Protection Plan (CVFPP)
- Mapping Activity Statements
- California Coastal Analysis and Mapping Project

The Federal and State governments plan to share this information with local agencies to assist with understanding flood risk and for land use planning.

## 3.2 Planned and Ongoing Projects

During the information gathering effort, a number of different sources for planned or proposed projects were identified, including local agencies, USACE, CVFPP, and Delta Programs. The following subsections describe each source for this information.

### 3.2.1 Local Agency Planned Projects

836 projects, totaling approximately **$12 billion** in project costs, were identified.

As part of the Stage 3 information gathering effort, local agencies were asked to identify planned or proposed flood management projects in California. These projects include both flood-management-focused projects and IWM projects. The list of Local Planned Projects was compiled from numerous sources. Agencies identified projects in their long-term plans during meetings with the Information Gathering teams. IRWM Plan reports and IWM planning documents were used as primary references for planned and ongoing flood projects in each county. Because the intent was to approximate remaining flood infrastructure funding needs, county and city CIP budget reports and websites were also reviewed. Other sources for planned flood and/or conjunctive use projects were Proposition 1E and 84 project application lists, and the American Society of Civil Engineers report cards.

As shown in Table E-6, there are 836 projects, totaling approximately $12 billion in project costs, identified in the planned projects list.

**Table E-6. Local Planned Projects by Hydrologic Region**

| Hydrologic Region | Total Local Planned Projects | IWM Projects | Projects with Cost | Number of Projects without Cost | Total Cost ($ million) |
|---|---|---|---|---|---|
| Central Coast | 42 | 29 | 25 | 17 | 280 |
| Colorado River | 24 | 1 | 21 | 3 | 70 |
| North Coast | 26 | 15 | 15 | 11 | 110 |
| North Lahontan | 13 | 5 | 4 | 9 | 20 |
| Sacramento River | 160 | 67 | 80 | 80 | 2,320 |
| San Francisco Bay | 118 | 43 | 101 | 17 | 1,970 |
| San Joaquin River | 55 | 25 | 47 | 8 | 730 |
| South Coast | 335 | 63 | 325 | 10 | 5,740 |
| South Lahontan | 33 | 21 | 29 | 4 | 170 |
| Tulare Lake | 30 | 18 | 27 | 3 | 240 |
| TOTAL | 836 | 287 | 674 | 162 | 11,610 |

Note: All projects were identified as of January 2012.

As shown, the need for investing in flood infrastructure is high. However, the total of approximately $12 billion does not represent the total cost of the planned or proposed projects because approximately 20 percent of the projects listed do not have cost estimates.

For most agencies, an estimate of the full cost of infrastructure deficiencies or project needs is not known. However, in Orange County, approximately $2 billion in improvements to provide 100-year flood protection have been identified. The Santa Clara Valley Water District is another example of an agency that has done a comprehensive assessment of flood management needs. As reported in the Santa Clara Valley Water District *2010 Draft Flood Protection and Stream Stewardship Master Plan*, 20 projects plan for and/or construct improvements on 46 miles of creeks to protect homes, schools, businesses, and roadways from flooding. Combined, these projects protect more than 30,000 parcels from potential flood risks. The estimated total cost of these projects is $1.4 billion, while the designated funding for these projects totals $1 billion. The balance of needed funds is expected to be met by a parcel tax that was recently approved by the community in a two-thirds-approval vote in the 2012 elections. In addition, other agencies have identified costs for miscellaneous needs (e.g., Riverside and San Bernardino counties report $150 million in miscellaneous projects).

## *Cost Estimate Limitations*

Projects listed without an associated cost estimate are either lacking sufficient detail to develop a reliable cost estimate at this point in the planning process, or no estimate was provided by the responsible agency.

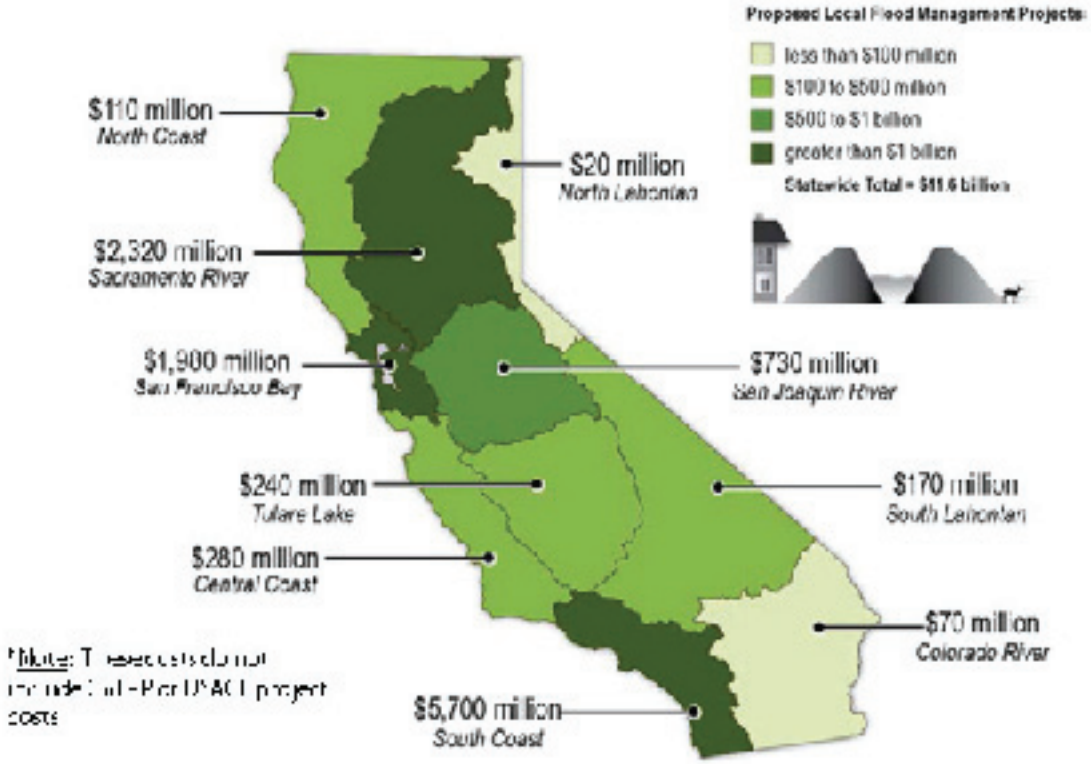
In addition, the project list does not capture the full picture of flood infrastructure needs to meet increased potential flood exposure (i.e., new capital projects) or rehabilitation and replacement of aging infrastructure. This is partially due to current regulatory and financial circumstances and the changing nature of flood risk over time.

In some cases, flood management may represent only a portion of the total project cost. For example, Colusa County has one large proposed project for Sites Reservoir; however, only part of the purpose of this project is for flood management. No attempt has been made to prorate the portion of costs attributable to flood management. USACE and CVFPP projects are not included in this list to avoid double counting.

Also, some agencies reported a USACE or other cost-shared project in their CIP and included the total project cost, without identifying their share of the cost or that of other sponsors. In other instances, agencies reported the total cost of a project, including phases that were already constructed. For many projects, only the planning costs have been estimated and not total project costs (including construction).

## *Local Planned Project Information Summary*

Table E-6 provides a summary of the total cost for projects identified by hydrologic region. Figure E-7 presents a summary of total estimated costs by hydrologic region for local planned projects. The complete list of identified local planned projects is provided in Appendix E.




Note: These costs do not include Non-USACE project costs

**Figure E-7. Map of Costs by Hydrologic Region for Local Planned Projects**

## 3.2.2 USACE Potential and Ongoing Flood Projects

The USACE recommends that funding appropriations for flood management projects be included in the President's budget. However, this recommendation does not imply that any project will receive appropriations. Each request may or may not be included in the Energy and Water Appropriations for any given year. For the 2013 fiscal year, 60 USACE projects in California were identified for a total of approximately $6 billion (see Table E-7) that USACE will consider recommending.

This list comprises new and ongoing general investigation projects, including planning studies and construction projects. The costs listed include Federal and local costs for the full project. Projects from other programs, such as Flood Plain Management Services and Planning Assistance to States, are not captured here. A complete list of USACE potential and ongoing flood projects is included in Appendix E.

**Table E-7. USACE Potential and Ongoing Flood Projects by Hydrologic Region**

| Hydrologic Region | Total Number of USACE Projects | Number of Projects Funded | Total Cost ($ million) | Number of Projects Funded in FY 2012 | Funding Appropriated In FY 2012 ($ million) |
|---|---|---|---|---|---|
| Central Coast | 6 | 6 | 500 | 1 | 6 |
| Colorado River | 1 | 0 | 0 | 0 | 0 |
| North Coast | 2 | 1 | 150 | 0 | 0 |
| North Lahontan | 1 | 1 | 20 | 1 | 2 |
| Sacramento River | 3 | 3 | 230 | 1 | 10 |
| San Francisco Bay | 17 | 17 | 1,400 | 5 | 3 |
| San Joaquin River | 4 | 4 | 50 | 1 | 0.2 |
| South Coast | 19 | 18 | 2,700 | 7 | 41 |
| South Lahontan | 0 | 0 | 0 | 0 | 0 |
| Tulare Lake | 7 | 7 | 1,030 | 3 | 18 |
| Total | 60 | 57 | $ 6,080 | 19 | 80 |

Notes: Potential projects listed are current as of this writing. USACE Project List was last revised as of Federal FY 2012.
FY = fiscal year
*Source: USACE, 2012 and USACE, 2013*

## 3.2.3 CVFPP Proposed Investments

The CVFPP has identified additional flood improvements as part of its State Systemwide Investment Approach (SSIA). The SSIA is the State's preferred approach for modernizing the State Plan of Flood Control (SPFC) to address current challenges and affordably to meet the CVFPP goals of improving flood management, improving O&M, promoting ecosystem functions, improving institutional support, and promoting multibenefit projects. The SSIA provides guidance for future State participation in flood-related projects and programs in the Central Valley.

- The SSIA, as proposed in the CVFPP, consists of the following elements:
  Urban improvements
  - Reconstruction, rehabilitation, or improvement of existing urban levees to achieve protection from the 200-year (0.5 percent annual chance) flood
- Rural-agricultural improvements
  - Levee improvements (such as constructing setback levees, maintaining levee crown elevations, and providing all-weather access roads to facilitate inspection and fighting floods)
  - Hydraulic structure upgrades to combat facility age or operational problems
  - Removal of rock revetment, levees, and other facilities that are no longer functioning
- Systemwide improvements
  - Large system improvements, such as new bypasses or bypass expansions (and related hydraulic structure modifications)
  - New reservoir storage
  - Operational changes of reservoirs, weirs, and bypasses

- Residual risk management
  - Enhanced flood emergency response: All-weather roads on levee crown, flood information collection and sharing, local flood emergency response planning, forecasting and notification, and rural post-flood recovery assistance program
  - Enhanced O&M: Erosion repairs, developing and implementing enhanced O&M programs and regional O&M organizations, and Sacramento channel and levee management and bank protection
  - Enhanced floodplain management: Raising and waterproofing structures and building berms, purchasing and relocating homes in floodplains, managing land use and floodplains, and obtaining agricultural conservation easements

Table E-8 provides a preliminary cost estimate for the SSIA. Areas receiving protection by SPFC facilities were divided into nine implementation regions, as shown in Figure E-8. The costs represent total combined investments for local, State, and Federal agencies for capital improvements and 25 years of ongoing annual work to maintain the system.

**Table E-8. Estimated Costs of CVFPP and SSIA by CVFPP Implementation Region**

| | Urban Improvements | Rural-Agricultural Improvements | System Improvements | Residual Risk Management | Total Cost ($ million) |
|---|---|---|---|---|---|
| Upper Sacramento | 120 to 140 | 150 to 170 | 110 to 180 | 100 to 110 | 480 to 610 |
| Mid-Sacramento | 0 to 0 | 360 to 380 | 230 to 340 | 260 to 330 | 850 to 1050 |
| Feather River | 890 to 1,050 | 280 to 290 | 1,700 to 2,140 | 170 to 210 | 3,040 to 3,690 |
| Lower Sacramento | 3,550 to 4,280 | 80 to 90 | 1,630 to 1,960 | 140 to 170 | 5,400 to 6,500 |
| Delta North | 140 to 190 | 600 to 630 | 750 to 920 | 270 to 310 | 1,760 to 2,050 |
| Delta South | 0 to 0 | 50 to 50 | 430 to 550 | 110 to 140 | 590 to 740 |
| Lower San Joaquin | 630 to 810 | 20 to 20 | 10 to 10 | 80 to 100 | 740 to 940 |
| Mid to San Joaquin | 0 to 0 | 50 to 60 | 60 to 100 | 80 to 100 | 190 to 260 |
| Upper San Joaquin | 170 to 200 | 180 to 190 | 230 to 300 | 310 to 400 | 890 to 1,090 |
| Total | $5,500 to 6,670 | $1,770 to 1,880 | $5,150 to 6,500 | $1,520 to 1,870 | $13,940 to 16,920 |

Notes:
The cost estimates include SPFC flood management investments that have already been expended or committed during the 2007 to 2011 period.
Some elements of locally identified projects included in the IWM Project List may be included in the CVFPP overall cost estimates.
All costs are planning-level estimates (in millions); they are based on 2011 price levels. Actual costs will vary because of a wide range of factors, including project justification by feasibility studies, project configuration, implementation time, future economic and contractor bidding conditions, and many others.
*Source, DWR, 2012b*

Planned projects based on the CVFPP will ultimately depend on regional flood management plans and detailed feasibility studies that will refine and define specific improvements, quantitative costs for planned CVFPP projects cannot be provided at this time.[3]

[3]Specific project features ultimately implemented for the SSIA will depend on a host of factors. These factors include detailed project feasibility studies; designs and costs; environmental benefits and impacts; interaction with other local projects and system improvements; Federal, State, and local agency participation in project implementation; and changing physical, institutional, and economic conditions.

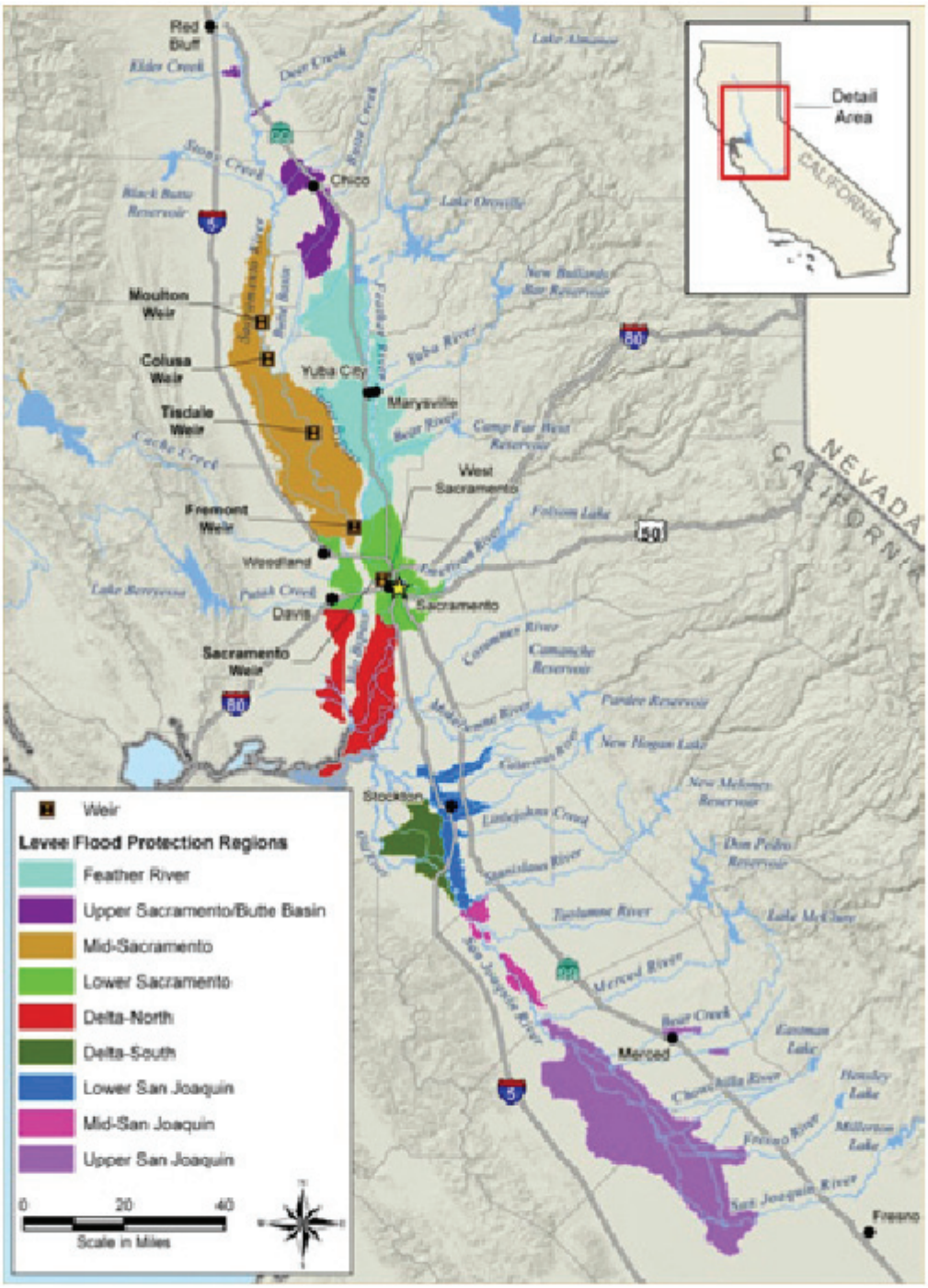



**Figure E-8. Central Valley Flood Protection Plan Implementation Regions**

### 3.2.4 Delta Improvement Investments

Currently, no comprehensive flood risk reduction plan exists for the Sacramento - San Joaquin River Delta (Delta), and no associated cost estimates are available. Costs for future levee improvements will depend on what level of protection is shown to be cost effective for each individual island/tract and for the network of islands/tracts. Levees for individual islands/tracts not only provide direct benefit to the areas they protect but also provide benefit as part of the network of levees that define the water channels and the configuration of the Delta. As a result, the level of protection provided by levees will vary.

Ongoing programs and investigation will influence future plans for the Delta but will not produce a comprehensive flood risk reduction plan for the Delta. Therefore, past studies were used to show a range of potential costs to improve Delta levees to achieve different levels of flood protection.

The past study estimates show a wide range of potential improvements with estimated costs ranging from $0.1 billion to over $17 billion. With the lower estimate that accepts more levee failures, responsible agencies will need to place more effort on future recovery from flooded islands/tracts, or make decisions not to recover certain areas after flooding. Considering that these are the available extremes, the likely cost will fall somewhere between these estimates.

### 3.2.5 Summary of Potential Projects in California

Figure E-9 presents the locations of potential and proposed projects for both local agencies and USACE as of November 2011. Many of the USACE projects could become inactive or be deferred in the near future. Table E-9 shows the estimated costs of all known flood-related projects in California.

These project lists—local, regional and USACE—do not capture the complete extent of flood management needs in California. The lists showcase a full range of flood project needs from planning through construction and O&M at local, State and, Federal levels.

**Table E-9. Estimated Cost of Known Projects/Investments**

| Projects | Cost ($ billion) |
|---|---|
| Local Projects | 12 |
| CVFPP Investment Needs | 14 to 17 |
| USACE Partnered Projects | 6 |
| Delta Investments | 0.1 to 17 |
| Total | $ 32 to 52 |

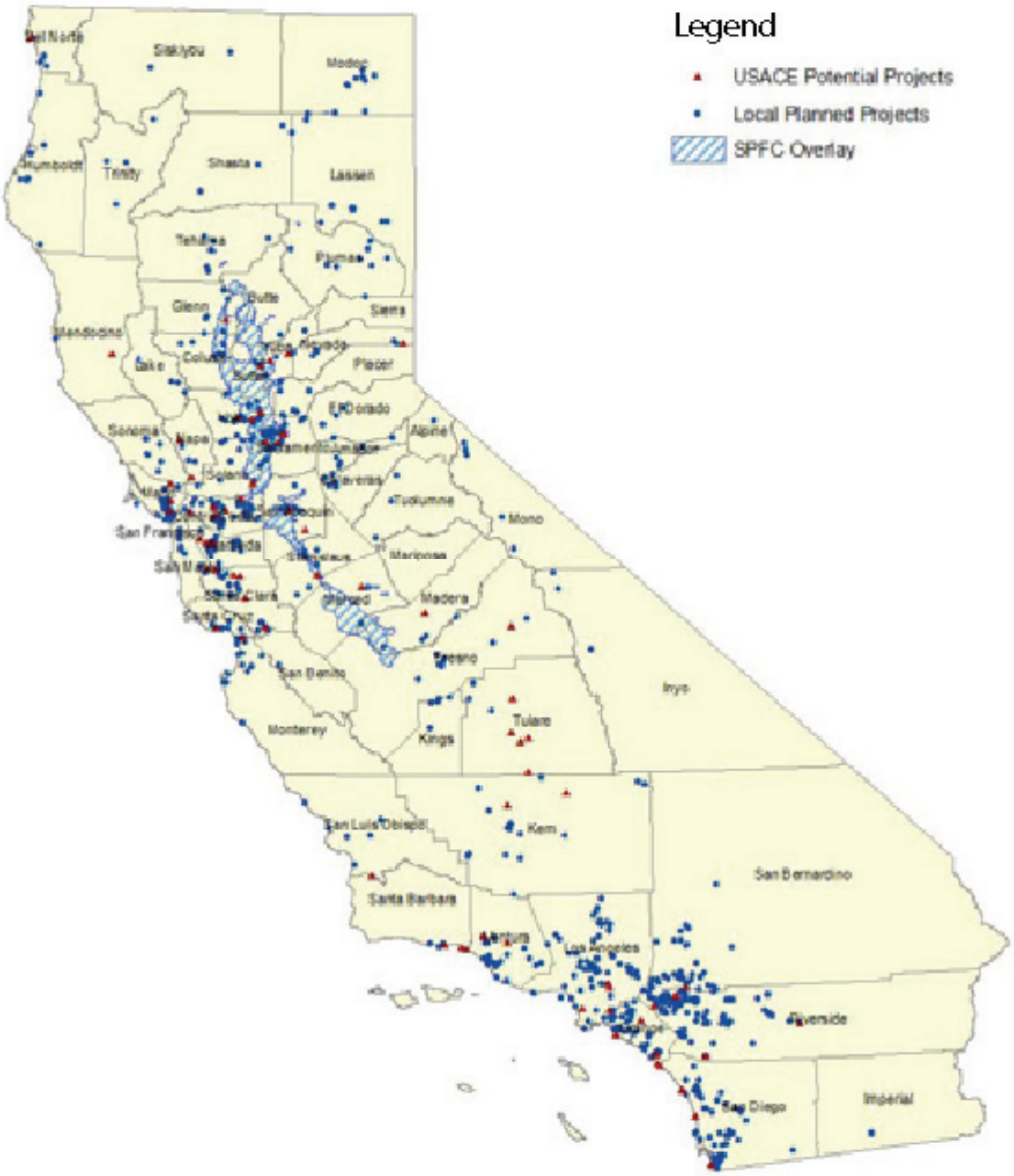



**Figure E-9. Location Map of Potential USACE and Local Planned Flood Projects**

## 3.3 Flood Risk Information

A primary goal of the information gathering process was to collect and review local agency documents related to flood risk. To understand how agencies prioritize flood management projects, assess flood risk, and monitor residual risk, agencies were asked who was susceptible to flooding (i.e., who was in harm's way of the hazard) and how historical and projected damages are documented.

### 3.3.1 Risk Information Assessment

Five categories, based on USACE best practices for determining risk, were used to filter what type of risk information was available in the gathered risk-related documents. This information was then used to develop a statewide flood risk information inventory.

The steps below describe the approach used to identify documents as containing flood risk information:

1. Identify and collect all USACE risk studies for the counties. Review to make sure that the latest version released was obtained.
2. Review all documents and reports that the agencies identified as having risk-relevant information.
3. Catalog the documents and reports by the level of information they contain (i.e., full risk analysis; partial risk analysis; and information related to loading, performance, exposure, and vulnerability).
4. Review documents with potential for full or partial risk information.

Collected risk information was reviewed to ensure that it met minimum standards prior to synthesis. To be considered risk-relevant, the information had to include at least one of the following components:

- Studies defined components of risk, consistent with components identified herein. The study must identify the hazard (hydrology and hydraulics), performance (likelihood of flooding due to breach of levees, for example), exposure (people or property harmed), vulnerability (susceptibility to loss or damage), and/or consequence (damage and loss of life).
- Studies followed standard practice for computing economic risk, such as using an expected annual damage (EAD) approach. Risk, ideally, would be computed considering a range of events, not simply a single event, such as might be done for a dam-breach study or certain specific design studies.
- Studies had to provide dates of and sources for information (e.g., the dates of structure inventories and hydrology studies upon which the risk analysis is based).

After the technical review, documents were organized by the level of risk assessment completed and/or the available components of risk assessment.

Table E-10 outlines the categories of different levels of risk assessment, depending on the type of information/data available.

**Table E-10. Summary of Risk Information Assessment Strategy**

| Category | Subcategory | Example |
|---|---|---|
| Adequate risk assessment (following our definition of risk equaling the function of loading, exposure, consequence) | Recent loading (hazard), exposure, consequence information | Recent USACE feasibility study available |
| | Dated (old) consequence information | Older USACE feasibility study available |
| Study with components of risk assessment (as defined), but some components missing | Missing or inadequate consequence information | Local or regional stormwater management study available |
| | Missing or inadequate hazard or exposure information | Incomplete planning study available (prepared for a different purpose, such as design with specified level of protection without regard to benefit-to-cost ratio) |
| Components of risk assessment available, but incomplete in context of definition | Incomplete hazard or exposure information | Dam break study with only probable maximum flood considered; FEMA floodplain mapping study |
| | Incomplete consequence information | Report of damage from single historical flood |
| No assessment available or assessment components seriously out of date or do not apply minimum standards | N/A | N/A |

Notes:
N/A = Not applicable

## 3.3.2 Gathered Risk Information

Once the available information was gathered from local agencies, the SFMP team developed an inventory of risk-relevant information, in conjunction with a risk exposure analysis using the FEMA "Hazards United States " (HAZUS) approach, to best characterize flood risk in California.

Further review of the documents revealed that, of the more than 140 agencies participating in the SFMP Program, only a few agencies had specific risk information on consequences and likelihood. Typically, these agencies were partnering with the USACE or were seeking funding and, therefore, were following the USACE process for assessing risk. This exercise also revealed that the majority of the agencies referred to FIRMs and Hazard Mitigation Plans (HMPs), which contained the only risk information available for the agency. HMPs identify potential hazards within a jurisdiction, primarily using FIRM and NFIP damage claims, which does not constitute a full risk assessment as defined by USACE.

Further review of the documents revealed that, of the more than 140 agencies participating in the SFMP Program, only a few agencies had specific risk information on consequences and likelihood.

To understand how agencies prioritize flood management projects, assess flood risk, and monitor residual risk, agencies were asked who was flooded (i.e., who was in harm's way of the hazard) and how that information was documented. Agencies typically referred to local hydrologic and hydraulic studies prepared in support of a specific project and/or FEMA FIRM maps. Local agencies did not report flood risk in terms of potential loss of lives. Local agencies have funding limitations and, typically, do not undertake USACE risk assessments due to the cost of data requirements needed to complete these studies.

Of the 1,850 documents posted to the DWR database, approximately 700 documents were initially identified as potentially containing risk information and were reviewed for risk-relevant information as described in Section 3.3.1. Of the 700 documents originally identified, a subset of these was included in the SFMP Risk Information Inventory (see *Attachment G: Risk Information Inventory* for further details). Mapping-related documents were used in the SFMP Exposure Analysis (see *Attachment F: Flood Hazard Exposure Analysis* for further details).

### 3.3.3 Recent USACE Risk Assessment Studies

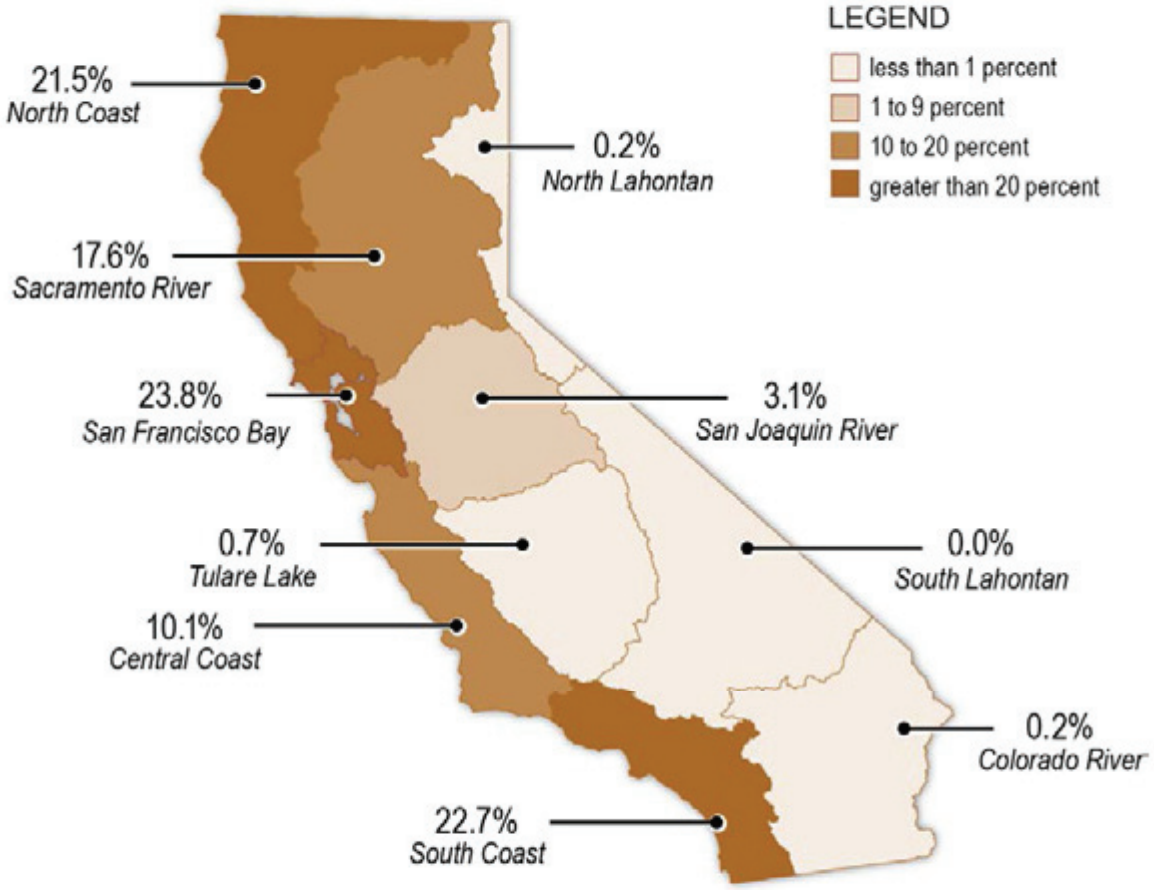
The USACE recently has worked with local agencies in 23 California counties to develop documents that include a risk assessment. These studies were performed primarily in areas where significant deficiencies were identified by local agencies. Such areas include major streams (e.g., Sacramento and Santa Ana rivers), high-risk population areas (e.g., Los Angeles area), and areas with recurring flood events (e.g., Napa and Santa Clara counties). Figure E-10 shows the locations of recent USACE risk studies throughout California.

### 3.3.4 NFIP Claims Information

The database of NFIP claims was reviewed as part of the information gathering effort. The NFIP provides flood insurance to exposed communities. Participation in the NFIP requires a community to adopt and enforce a floodplain management ordinance to reduce future flood risks due to new construction in Special Flood Hazard Areas (SFHAs). The SFHAs and other risk premium zones applicable to each participating community are depicted in FIRMs. All counties in California participate in the NFIP except Mariposa County, where the steep terrain makes flooding less frequent.

Although flooding events occur across the state, Figure E-11 indicates the distribution of residential costs incurred by hydrologic region. The counties with the largest financial impacts documented are Sonoma, Los Angeles, Marin, Sacramento, Napa, and Monterey counties. The NFIP has paid more than $495 million for claims in California since 1978 (FEMA, 2011). These trends in flood damage match the high levels of exposure to flood hazards found in these counties, which are described in *Attachment F: Flood Hazard Exposure Analysis*. See *Attachment G: Risk Information Inventory* for further details on NFIP claims.

**Figure E-10. Recent USACE Risk Studies in California**




Notes:
1. NFIP claims cover residential structures only. Commercial structures are not covered in this program.
2. Mariposa County is not a participant in the NFIP.

**Figure E-11. NFIP Costs by Hydrologic Region**

## 3.4 Integrated Water Management

### 3.4.1 What is IWM?

Integrated Water Management is both a philosophy and approach to promote the coordinated development and management of water-related resources to maximize public safety, economic stability, and environmental stewardship. IWM includes water supply, flood management, and ecosystem activities at all scales—catchment, regional, system, and statewide.

Effective IWM approaches the complex challenges of water management through transparent and collaborative stakeholder processes to align water planning and policies, use funding sources efficiently and effectively, and implement projects that deliver multiple benefits to achieve long-term water sustainability.

Multiple-benefit flood management solutions using the IWM approach provide efficient use of public resources by delivering more benefits at a faster pace, using fewer resources than what is possible from single-benefit projects. Localized, narrowly focused projects are not the best use of public resources and might have negative unintended consequences in nearby regions.

Effective flood management is enhanced by collaboration and partnerships among public agencies at all levels (local, State, Federal) and across geographic boundaries. Coordination among diverse agencies is effective in addressing jurisdictional and facility ownership issues and restrictions commonly encountered in complex flood and water management projects or in emergency management. Using an IWM approach can provide broader stakeholder support, faster project completion, increased transparency, and access to additional funding sources that may not have been available to narrowly focused projects. The use of an IWM approach is particularly useful for achievement of sufficient and stable funding for long-term flood management.

In general, most of the local agencies that were contacted during the information gathering process have a good understanding of IWM. In fact, most agencies have considered an IWM project, and many have incorporated IWM into their agency's mission statement. A few, mostly larger-sized agencies are actively pursuing funding for IWM projects and have included IWM projects in their CIPs. In contrast, smaller or more rural agencies often struggle with developing IWM projects.

The need to implement flood management using an IWM approach will become even more apparent with increased competition for limited water and financial resources. The value of using an IWM approach is in the results—improved public safety, enhanced environmental stewardship, and statewide economic stability.

IWM is examined in depth in *Attachment H: Practicing Flood Management Using an Integrated Water Management Approach*.

## 3.4.2 IWM Information Gathered

### *Local IRWM Participation*

Changes to the DWR IRWM process, which requires flood management to be included in the plan, provided an opportunity in many regions of the state for local flood management agencies to actively participate in the IRWM process. In some regions, this has enabled projects not only to be incorporated into an IRWM Plan but also to receive high-priority ranking (if projects were IWM in nature). For example, two planned IWM projects scored in the top 10 for the Santa Ana IRWM Plan that was sponsored by the San Bernardino Flood Control District. The two projects both incorporated flood management and groundwater recharge.

Local flood agencies are eager to participate in the IRWM process and are looking forward to the potential for receiving grant funding. Some concerns remain about whether flood agencies have been incorporated as full partners in the process, and other concerns exist regarding some of the criteria that local IRWM groups have used to prioritize projects.

### *IWM Projects*

The IWM information collected shows that flood-related projects have been incorporated with a wide range of other projects to produce integrated or multipurpose projects. Local agencies and USACE provided project information for 320 planned and ongoing IWM projects. Table E-11 shows the numbers of IWM projects for each resource management strategy that are integrated with flood management by hydrologic region. The most common resource management strategies that are integrated with flood management include ecosystem restoration and water supply/groundwater recharge. Projects contained in the CVFPP are not included in this tabulation. See Appendix E for complete descriptions of these IWM projects.

**Table E-11. Number of IWM Projects by Resource Management Strategy**

| Hydrologic Region | IWM Categories | | | | | | Total IWM Projects |
|---|---|---|---|---|---|---|---|
| | Agriculture | Ecosystem | Water Supply | Recreation | Water Quality | Transportation | |
| Central Coast | 1 | 15 | 2 | 1 | 11 | 1 | 31 |
| Colorado River | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| North Coast | 1 | 6 | 4 | 1 | 4 | 1 | 17 |
| North Lahontan | 0 | 3 | 1 | 1 | 0 | 0 | 5 |
| Sacramento River | 1 | 40 | 14 | 3 | 9 | 2 | 69 |
| San Francisco Bay | 0 | 40 | 2 | 5 | 4 | 2 | 53 |
| San Joaquin River | 0 | 10 | 13 | 0 | 2 | 0 | 25 |
| South Coast | 0 | 35 | 18 | 5 | 14 | 4 | 76 |
| South Lahontan | 0 | 6 | 10 | 2 | 3 | 0 | 21 |
| Tulare Lake | 1 | 7 | 11 | 1 | 2 | 0 | 22 |
| Total IWM Projects by Category | 1 | 142 | 74 | 13 | 47 | 10 | 287 |

## 3.5 Financing Strategies

Funding for flood management projects in California comes from all levels of government. Flood management projects are typically funded by local agencies or groups of local agencies; local agencies and the USACE; State and local agencies; or local, State, and Federal agencies. These funding combinations usually are determined for projects on a site-by-site, project-specific basis to take advantage of available funding sources. In many cases, this approach lacks a systemwide perspective and can result in a reduction of other water-related benefits. This approach can also induce unintended consequences, such as shifting of flood risks to other areas and/or creating negative impacts to the environment.

### 3.5.1 Information Sources

Local agencies provided their financial information via CIPs, annual budget documents, or in discussions during the information gathering meetings. Information was collected for California city expenditures on flood management from the California State Controller's Office (SCO, 2013). State and Federal information was collected directly from entities or via publicly available records. Sets of data also were available for different periods; therefore, this information gathering effort focused on data over the last 10 years (from 2000 through 2009).

Due to the number and different types of agencies that fund flood management in California, identifying and homogenizing funding data were difficult tasks. Different

types of agencies report financial information in different ways. For example, some agencies include planning as part of project capital cost, whereas other agencies include it with O&M expenses.

It was difficult within cities to differentiate between expenditures for flood management and storm drainage, so both are included where available. Most Federal and State agencies are more focused on flooding events as opposed to local drainage issues. Local agencies do fund stormwater or local drainage projects; however, these projects are often accounted for in local agency budgets under the transportation department.

### 3.5.2 Statewide Overview of Flood Management Funding

Increased funding occurred in a number of years due to specific events such as new legislation and/or bond funding. Funding of flood management projects during this period was highest in the years after September 1, 2001, and in 2009 due to the infusion of Federal funding from the American Recovery and Reinvestment Act. During these two timeframes, there were significant short-term infusions of funding for specific projects within the state. In California, flood management funding began increasing after 2007, when more than $5 billion in funding was authorized by the passage of Propositions 1E and 84. O&M funding also benefited from these initiatives

Local agency funding statewide ranged from approximately $1.2 billion to almost $1.7 billion. However, the funding has been slowly declining since 2008, along with the U.S. economy. This decrease in flood management funding is a result of declining development fees, property taxes, and impact fees, as well as competition for agency general funds. Most of the funding for local agencies went to operating expenses, with little available for construction and rehabilitation of facilities.

For most local agencies, local revenue is generated by a type of property tax assessment. Unlike other states, California's ability to invest in its infrastructure is limited by voter-approved initiatives, such as Proposition 13 (limiting property tax increases) and Proposition 218 (requiring voter approval for new assessments). Some agencies were able to supplement local revenue with USACE Civil Works funding and/or DWR grants. Table E-12 provides a summary of the local financing mechanisms used by the agencies that were contacted

**Table E-12. Financing Mechanisms Observed in Information Gathered from 142 Agencies across California**

| Mechanism | Used for Capital (C) and Maintenance (M) | Comment |
|---|---|---|
| **Local Financing Mechanisms** | | |
| Property assessments | C, M | Typically in place before Prop 13 and Prop 218<br>Impacted by Prop 13 and lower property values |
| Assessment/Improvement/Community Facility Districts | C, M | Many put in place for newer developments |
| Storm drainage charges | C, M | Typically put in place before Prop 218 |
| Surcharge on sewer bill | C, M | Only in combined sewer areas |
| General fund | C, M | Typically seen in smaller communities |
| Impact fees | C | Dependent on growth |
| Partner with irrigation district | M | Use irrigation district canals for drainage |
| Countywide sales tax | C | Requires a vote only for a defined period |
| **Federal and State Assistance** | | |
| Projects funded by USACE and FEMA | C | Need matching funds, difficult for some agencies to raise |
| Subvention funds | C | Local agencies need approved USACE project prior to receiving funds from DWR. Local agencies would like to see additional funding for subventions. |
| Prop 50, 84, and 1E | C, M | Depends on bond passage |
| State Transportation Improvement Program | C | Used for drainage-related portions of transportation projects |

## 3.5.3 Flood Management Funding Issues

The information gathered revealed a few key funding issues that will help direct future financing strategies. These funding issues are not related geographically but could be considered systemwide issues, as described below.

### *Inconsistent and Insufficient Funding*

- **Flood management funding is historically inconsistent.** Funding for flood management projects is especially susceptible to reductions in dry-weather years and economic downturns. Flood management funding varies year-to-year due to a variety of factors.
- **Smaller agencies might not have the resources to complete funding applications.** Because some of the information requested on many of the grant or loan applications is information not typically collected by the agency and not quickly developed, smaller agencies might not have the resources to prepare an application. Approximately one-fourth of the agency interviews resulted in a request that the State provide resources to help with applications.

### *Declining Local Resources*

- **Agencies that have impact fees are affected by the slowdown in growth**. Although storm drainage or flood management impact fees are a good option for growing communities, this source of revenue dries up when growth is stagnant. Approximately one-third of the agencies interviewed discussed the impact of reduced development and the associated impact on fees and the agency's funding ability.
- **Restrictions to increasing property assessments from Proposition 13 and Proposition 218**. The majority of flood management agencies depend on some type of property assessment as a revenue source; however, the ability to increase or initiate property assessments to meet revenue requirements has been restricted for some time. More than half of the agencies interviewed suggested that flood management and storm drainage agencies become exempt from the requirements of Proposition 218, as are water and wastewater utilities.

### *Reduced Federal Cost Shares*

- **Agencies have difficulty raising matching funds for Federal programs.** Many of the agencies are somewhat dependent on Federal or State funds for major capital improvements; however, with limited local revenue generation, many agencies cannot access those Federal funds because they cannot raise the required matching funds. Approximately one-fourth of the interviewees mentioned that agencies were "leaving money on the table."
- **Agencies recognize that Federal funds are becoming scarcer.** With the fiscal problems facing the Federal government, most agencies recognize that Federal funding programs will be reduced, if not eliminated except in the case of disaster relief. This reduction, coupled with restrictions on the ability to raise local funds, creates a challenging funding environment. Roughly one-tenth of the agency interviews involved discussions about the issue of reduction in Federal funding for projects.

*Attachment I: Finance Strategies* provides a complete discussion of finance strategies developed as part of the SFMP Program.

# 4.0 Existing Conditions of Flood Management in California

## 4.1 Opportunities and Challenges Identified by Local Flood Management Agencies

A major component of the assessment of flood management in California was to gather information from the agencies on opportunities and challenges related to infrastructure, financing, flood management policy, and IWM. More than 350 opportunities and challenges were identified and tabulated from agency meeting summaries. These opportunities and challenges are being used to help develop recommendations. The process for developing recommendations is discussed in *Attachment J: Recommendations to Improve Flood Management in California*.

A review of these recommendations revealed several recurring themes. Some of the same issues that plagued the larger urban counties also affected some of the smaller counties. For example, regardless of the size or land use category, counties expressed frustration with trying to achieve contradictory objectives from multiple environmental stakeholders while complying with permit requirements. Another example of issues challenging large and small counties, both urban and rural, is the common concern about funding O&M for construction projects that were co-sponsored by a Federal or State agency.

### 4.1.1 Statewide Coordination

- **Improve coordination with and within local, State, and Federal agencies involved in flood management.** More than 80 percent of the information gathering interviews involved discussions about the need for improved coordination between agencies that have responsibilities related to flood management. These discussions were divided into a number of different subcategories including:
  - Local agencies encouraged DWR to take a proactive approach in helping agencies communicate their needs to Federal agencies. For example, communication between Federal and State agencies could have prevented the funding dilemma that occurred for one local agency when it was identified as a recipient of Federal funding but was unable to locate a resource for the local cost-share responsibility.
  - Generally, agencies seemed frustrated with the lack of coordination between regulatory and resource agencies. The environmental regulatory process has become so costly, that agencies, large and small, have been unable to do the following:
    - Build projects due to regulatory changes during project development process.

  - Permit projects because during the approval process (i.e., design and permitting process), new flora (wetlands, for example) have established, which change mitigation requirements and potentially increase project costs.
  - Comply or come to terms with multiple regulatory agencies with contradicting objectives and requirements (such as the Regional Water Quality Control Board, California Department of Fish and Wildlife, USACE).
- Local agencies think that many statewide mandates are disjointed, uncoordinated, and not applicable. Most Federal and State policies and regulations are intended for large urban areas and some are applied in a one-size-fits-all fashion.

### 4.1.2 Sustainable Financing

- **Achieve sustainable IWM financing.** More than 80 percent of the information gathering interviews included discussions about the need for sustainable project and O&M financing. These discussions were divided into a number of different subcategories, including:
  - DWR should take a proactive approach in helping small/rural/agricultural communities to participate in the grant application process. For example:
    - Small agencies with limited staff and small populations have large areas to cover but do not have the tax base or funding mechanism to be able to participate/apply in the grant process.
    - Some of these agencies stated that they were not even aware that their county was assigned a regional DWR representative with whom they could talk about these programs.
  - Maintenance is a large part of flood agency operations, and yet agencies have found that maintenance funding and regulatory support are often difficult to obtain. Projects that are built by Federal and State/local partnerships can underestimate the true cost of O&M because costs are estimated early in the project development process. Agencies, large and small, appreciate having flood infrastructure designed and built in their communities by the Federal and State/local government, but then the local agencies must take on the responsibility of maintaining those projects. Oftentimes, the local agencies do not have enough funding for O&M, resulting in many projects losing hydraulic capacity over time. In some cases, the agencies have lost their permit to maintain the facilities.
  - Because of the many concerns reported by agencies regarding budgeting and funding for O&M, the SFMP team asked follow-up questions of the counties during the information gathering process. Agencies were asked how much was currently budgeted for O&M, and what budget would be required in the future if all of their ongoing and planned projects were built. Of the 45 counties that responded, 77 percent submitted their O&M costs. Table E-13 shows the response

results of those questions. Agencies are listed only if they provided budget information. Many agencies reported being underfunded for O&M for existing projects, and most agencies will need a significant increase in O&M budgets to sustain their planned projects. Nine agencies currently have less than $40,000 budgeted for O&M, with six agencies reporting $0 for their budget. The reported range of O&M budgets varies greatly from $5,000 (Del Norte) to $26,000,000 (Sacramento).

**Table E-13. Current and Projected O&M Budgets by County**

| County[a] | Current Annual O&M Budget[b] ($1,000) | Projected Annual O&M Budget Needed[c] ($1,000) |
|---|---|---|
| Alameda | 5,000 | 8,250 |
| Butte | 100 | 2,000 |
| Contra Costa | 3,000 | 10,000 |
| Del Norte | 5 | 25 |
| Fresno-Kings River Conservation District | 1,000 | 25,000 |
| Fresno-Flood Control and Water Conservation District | 797 | 845 |
| Humboldt | 114 | 660 |
| Inyo | - | 18,000 |
| Kern-Irrigation District 1 | 129 | 129 |
| Kern-Irrigation District 3 | 40 | 40 |
| Lassen | - | - |
| Los Angeles-City of Lancaster | 2,000 | 20,000 |
| Los Angeles-City of Palmdale | 92 | 920 |
| Madera | 230 | 1,200 |
| Marin | 3,000 | 5,000 |
| Modoc | - | 400 |
| Mono | 20 | 60 |
| Monterey | 2,000 | - |
| Napa | 1,000 | - |
| Orange | 14,000 | 15,250 |
| Riverside | 14,300 | 20,000 |
| Sacramento | 26,000 | - |
| Sacramento- American River Flood Control District | 2,300 | - |
| Sacramento- Sacramento Area Flood Control Agency | 1,800 | - |
| San Benito | - | - |
| San Bernardino | 7,000 | - |
| San Francisco | - | 414,000 |
| San Joaquin | 2,000 | 2,000 |
| San Luis Obispo | 11,000 | 16,000 |
| Santa Barbara | 3,000 | 5,000 |
| Santa Cruz | 650 | 1,000 |
| Siskiyou | - | - |
| Solano | 700 | 4,000 |
| Sonoma | 7,000 | 15,000 |
| Tehama | 55 | - |
| Ventura | 17,000 | 60,000 |

Notes:
[a]If a county is not listed, it did not provide O&M budget information during the verification process.
[b]Where ranges were provided, the high end of the range is listed.
[c]This represents the estimated annual budget needed if all ongoing and planned projects were built.

- The levee accreditation program has put a huge financial burden on many communities that do not have the funding mechanism to build new or to improve existing flood infrastructure. Local agencies want DWR to work with Federal agencies to develop a systematic approach to helping communities identify ways to plan for, construct, and finance improvements needed to attain and maintain levee accreditation.
- Local agencies often cannot qualify for project funding under existing USACE benefit/cost ratio computations. They want to see adjustments to the USACE benefit/cost ratio analysis for rural and disadvantaged areas to include other benefits not currently captured. For example, projects impacting an area in need of flood protection can be developed to more fully account for the benefits of additional project elements such as roadway elements, environmental, trail, and irrigation components.
- Local agencies cannot raise property tax revenue due to the restrictions of Propositions 13 and 218. They want to see a legislative change to allow Flood Control Districts to operate as a utility with rate payers as opposed to relying exclusively upon land-based assessments. Agencies operate at the mercy of bond cycles and grants for funding. The result is that the average household spending for drinking water and wastewater services is four to eight times the amount spent for flood management.

### 4.1.3 Multipurpose FM Approaches

**Implement regional integrated multipurpose approaches that promote achievement of the FloodSAFE goals.** More than half of the information gathering interviews supported the need for integrated approaches to flood management issues. Several participants recommended improving IRWM Plan and grant processes to specifically support rural communities while including them in regional planning and solutions. Comprehensive, regional, multipurpose approaches will include affected communities and ensure that a full breadth of purposes and possible approaches are considered.

### 4.1.4 Technological and Data Needs

**Improve and implement science and tools to enhance IWM in California.** Almost one-half of the information gathering interviews had discussions regarding the need to improve and implement science and tools to enhance IWM. These tools include increased gauging and monitoring of meteorological data for flood forecasting, tools to forecast a rise in sea level, improved hydraulic models, advanced mapping technologies, and enhancements to risk-assessment solutions.

### 4.1.5 Public Outreach

**Increase public awareness of flood management and flood risk.** One-fourth of the information gathering interviews had discussions regarding the need for assistance to increase awareness about flood exposure and residual flood risk. Local agencies encourage DWR to improve/increase IWM awareness among all agencies. IWM enables sharing the cost of projects, but some agencies do not know how IWM

works or how it can serve counties. Some agencies are wary of IWM due to perceptions that it may result in yet more environmental restrictions, longer permitting processes, shorter windows for maintenance operations, and increased mitigation requirements.

### 4.1.6 Emergency Management

**Improve flood emergency management programs and planning statewide.** One-tenth of the information gathering interviews included discussions about the need for assistance with emergency preparedness and response. In several areas of the state, flood infrastructure is maintained or improved only after a major flood results in significant damage. Agencies want to see a proactive/preventive approach to flood management for environmental and cost-saving reasons. In addition, some rural communities suggested that the NFIP needs modifications for non-urban areas.

The opportunities and challenges identified by local agencies are included in *Attachment J: Recommendations to Improve Flood Management in California*. These opportunities and challenges will be used to develop the overall recommendations for the Flood Future Report. The process for developing the final recommendations is described in Attachment J.

## 4.2 Summary of Findings

The results of the information gathering effort support the following key objectives included in the development of the Flood Future Report:

- Inventory existing infrastructure
- Assess exposure to flood hazard statewide
- Identify IWM opportunities
- Identify challenges and opportunities
- Identify finance strategies
- Develop recommendations

### 4.2.1 Infrastructure

Flood infrastructure maps compiled from gathered information for each county are included in *Attachment D: Summary of Exposure and Infrastructure Inventory by County*. These maps do not represent all existing flood infrastructure for the respective county. No single agency in any county was familiar with all existing infrastructure across their respective county. In many cases, agencies did not have a complete inventory of infrastructure that they owned and/or maintained. Between DWR and FEMA, six programs are currently underway to improve the quality of floodplain mapping and flood risk data statewide.

More than 835 flood management projects, planned or proposed by local agencies in California and totaling approximately $12 billion dollars in project costs, were identified. Including USACE, CVFPP, and Delta projects, the total cost of potential flood management infrastructure projects could be as high as $52 billion. For many

counties, the full cost of flood infrastructure deficiencies or future project needs is not known.

### 4.2.2 Flood Risk

Further review of the documents revealed that, of the more than 140 agencies participating in the SFMP Program, only a few agencies had specific risk information on consequences and likelihood. Typically, these agencies were partnering with USACE or were seeking funding and, therefore, were following the USACE process for assessing risk. This exercise also revealed that most of the agencies referred to FIRMs and HMPs, which contained the only risk information available for the agency.

Of the 700 documents originally identified, a subset of these was included in the SFMP Risk Information Inventory (see *Attachment G: Risk Information Inventory* for further details). Those that were mapping-related were used in the SFMP Exposure Analysis (see *Attachment F: Flood Hazard Exposure Analysis* for further details).

### 4.2.3 Integrated Water Management

The need to implement flood management using an IWM approach will become even more apparent with increased competition for limited water and financial resources. Changes to the DWR IRWM process, which requires flood management to be included in the plan, provided an opportunity in many regions of the state for local flood management agencies to actively participate in the IRWM process. In some regions, this has enabled flood projects not only to be incorporated into an IRWM Plan but also to receive high-priority ranking (if projects were IWM in nature). Local flood agencies are eager to participate in the IRWM process and are looking forward to the potential for receiving grant funding. Some concerns remain about whether the flood agencies have been incorporated as full partners in the process, and other concerns exist regarding some of the criteria that local IRWM groups have used to prioritize projects.

Agencies provided project information for 320 planned and ongoing IWM projects. The most common resource management strategies that are integrated with flood management include ecosystem restoration and water supply/groundwater recharge. More detailed information on planned and ongoing IWM projects can be found in *Attachment H: Practicing Flood Management Using an Integrated Water Management Approach.*

### 4.2.4 Finance

The information gathered found several key funding issues that will help direct future financing strategies. These funding issues are not related geographically, but could be considered systemwide issues, as described below.

- Flood management funding is historically inconsistent.
- Smaller agencies might not have the resources to complete funding applications.
- Agencies that have impact fees are affected by the slowdown in growth.

- Restrictions to increasing property assessments from Proposition 13 and Proposition 218.
- Agencies have difficulty raising matching funds for Federal programs.
- Agencies believe Federal funds are becoming scarcer.

*Attachment I: Financing Strategies* provides a complete discussion of the Finance Strategies developed as part of the SFMP Program.

### 4.2.5 Opportunities and Challenges Identified by Local Agencies

A major component of the process was to gather information from the agencies on opportunities and challenges related to infrastructure, financing, flood management policy, and IWM. A review of these findings revealed several recurring themes:

- Statewide Coordination
- Sustainable Financing
- Multipurpose Flood Management Approaches
- Technological and Data Needs
- Public Outreach
- Emergency Management
- Land Use Practices

The input from local agency interviews, along with the information gathered, serves as a foundation for the development of the Flood Future Report. Additional information on recommendations can be found in *Attachment J: Recommendations to Improve Flood Management in California.*

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# 5.0 References

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# Appendix A: Flood Future Report Components

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# Appendix A: Flood Future Report Components

California's Flood Future Report is composed of three layers of documents, which were developed with different audiences and purposes, as shown in Figure E-A-1. The three main layers are the Policy Brief, Highlights, and main report including the technical attachments (or technical memoranda).

The Policy Brief document provides a high-level summary of the key information contained in the Flood Future Report and its technical attachments. This document is meant to inform legislators, legislative staff, and agency executives about the report.

The Highlights document, which is an Executive Summary of the Flood Future Report, is more detailed than the Policy Brief slightly expanding the level of detail of the information provided in the Policy Brief. The Highlights document is intended for use by legislators, legislative staff, agency executives, and the public.

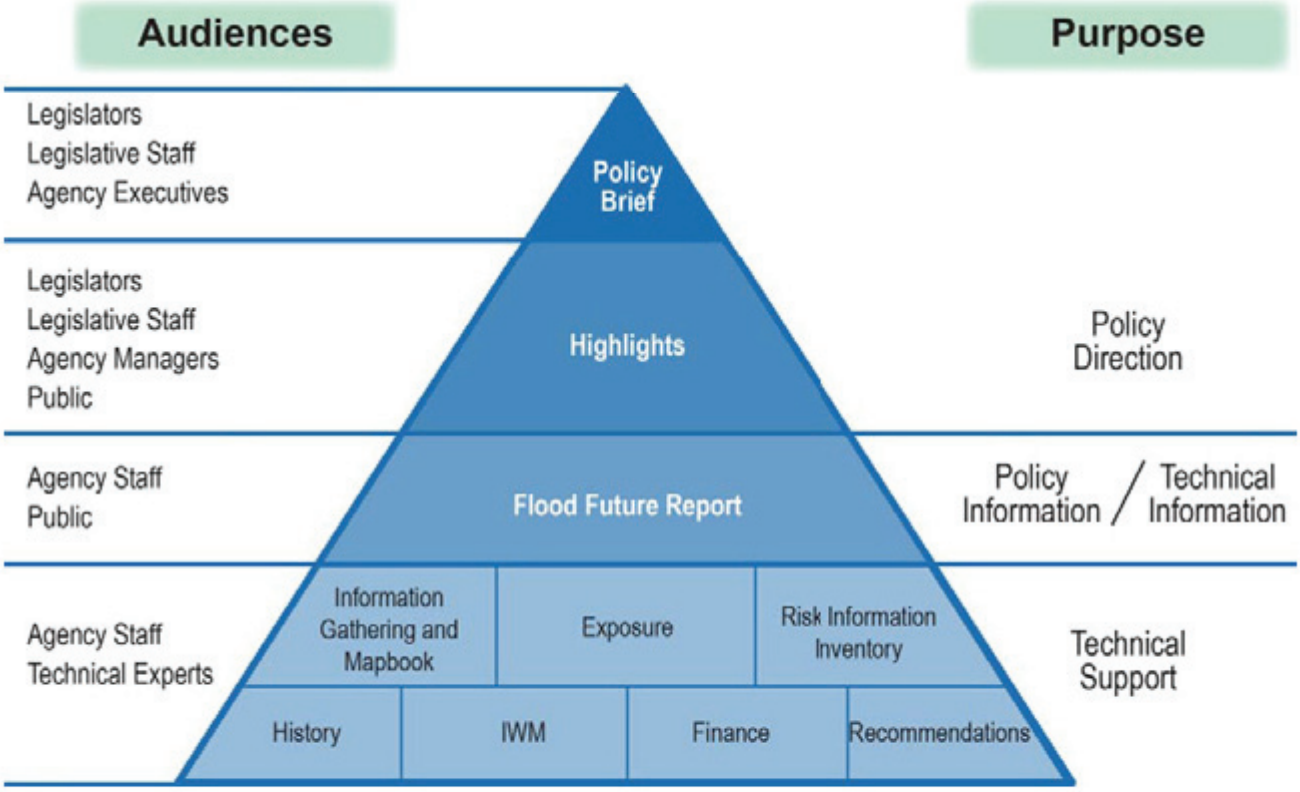


**Figure E-A-1. Flood Future Report Components Diagram**

The Flood Future Report provides a compilation of the information developed in the technical attachments. This document contains a comprehensive look at flooding throughout the state, and it describes the challenges and opportunities facing flood management. The Flood Future Report also provides information to make decisions about policies and financial investments to improve public safety, environmental stewardship, and economic stability.

This report is supported by eight technical attachments:

- ***Attachment A: References***
- ***Attachment B: Glossary***
- ***Attachment C: History of California Flooding.*** This attachment provides a detailed history of flooding in the 10 major California Water Plan hydrologic regions.
- ***Attachment D: Summary of Exposure and Infrastructure Inventory by County (Mapbook).*** This attachment is a mapbook organized by county providing information on exposure to flooding, flood infrastructure, flood types present, list of major floods, and information on the planned/proposed projects.
- ***Attachment E: Existing Conditions of Flood Management in California (Information Gathering Findings).*** This attachment provides an overview of the information gathering effort to collect flood management information from local, State, Tribal, and Federal agencies, as well as a detailed summary of the results of the information gathering effort. The purpose of this effort was to develop a better understanding of flood risk management in the State of California.
- ***Attachment F: Flood Hazard Exposure Analysis.*** This attachment describes the methodology used to identify flood hazard exposure statewide as well as the results of the flood hazard exposure analysis. This analysis was performed to provide insight into potential flood risks throughout the state.
- ***Attachment G: Risk Information Inventory.*** This attachment provides a better understanding of flood risk statewide, based on the best available information. To characterize flood risk in the California, the SFMP developed a risk exposure analysis used in conjunction with an inventory of risk-relevant information gathered from agency meetings.
- ***Attachment H: Practicing Flood Management Using an Integrated Water Management Approach***. This attachment provides a description of the evolution of flood management practices toward and using an IWM approach, an overview of IWM, the benefits of using an IWM approach, and sample case studies of projects that have used an IWM approach.
- ***Attachment I: Finance Strategies.*** This attachment provides an understanding of the current status of flood management financing and the challenges that lie ahead as California develops recommendations to address flood management issues.
- ***Attachment J: Recommendations to Improve Flood Management in California.*** This attachment provides a detailed description of how the Flood Future Report recommendations were developed and outlines the recommendations along with other high-level challenges.

Each of the documents follows a color scheme that was developed for the Highlights document. The documents are formatted using different-colored headers to indicate the purpose of a given section. The color scheme follows the following coding format:

- Introduction (light blue)
- Understanding the Situation (brown)
- The Problem (goldenrod)
- The Solution (royal blue)
- Recommendations (green)
- The Path Forward (yellow)

Any and all appendices to an attachment were coded using a light blue to represent that this is background or supporting information.

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# Appendix B: Agency Types and Contacts

This appendix contains a description of primary types of agencies identified in the information gathering process as having flood management responsibilities. This appendix also contains the complete list of agency contacts that participated in the information gathering in-person meetings.

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# B.1 Agency Type Definitions

**Table E-B-1. Types of Agencies Interviewed in the Information Gathering Process**

| Agency Type | Description |
|---|---|
| Cities | Cities have the ability to incur indebtedness "for any or all, or any part of, the following purposes:<br>(a) To protect the city from overflow by water.<br>(b) To drain the city.<br>(c) To secure an outlet for overflow water and drainage" (California Water Code, Division 5, Part 1, Chapter 1, subsection 8010). |
| Counties | Under the Government Code, counties have general authority to engage in flood control activities. In addition, Section 8100 of the Water Code states:<br>Under such limitations and restrictions as are prescribed by law, and in addition to jurisdiction and powers otherwise conferred, the boards of supervisors, in their respective counties, may appropriate and expend money from the general fund of the county for any of the following purposes in connection with streams or rivers in the county:<br>(a) The construction of works, improvements, levees or check dams to prevent overflow and flooding.<br>(b) The protection and reforestation of watersheds.<br>(c) The conservation of the flood waters.<br>(d) The making of all surveys, maps and plats necessary to carry out any work, construction or improvement authorized by this article.<br>(e) The carrying out of any work, construction or improvement authorized by this article outside the county if the rivers or streams affected flow in or through more than one county. (California Water Code, Division 5, Part 1, Chapter 2, subsection 8100) |
| Flood Control Districts | Counties can establish flood control districts to:<br>(a) To protect and preserve the banks of rivers and streams and lands lying contiguous thereto from injury by overflow or washing.<br>(b) To provide for the improvement of rivers and streams.<br>(c) To prevent the obstruction of rivers and streams.<br>(d) To assess, levy and collect within each district a tax for the district (California Water Code, Division 5 Part 1, Chapter 2, subsection 8110).<br>In addition to flood control districts, a number of districts have dual responsibility. For example, Flood Control and Resource Management districts are responsible for managing water and other natural resources within the county. |
| Levee Districts | A levee district is a type of special district formed for the protection of the lands of the district from overflow and for the purpose of conserving or adding water to the sloughs and drains in the district (California Water Code, Division 19, subsection 70030). Levee districts are primarily responsible for construction and maintenance of drains, canals, levees, and other structural devices. |
| Reclamation Districts | Reclamation districts are another type of special district that commonly has flood management responsibilities. Reclamation districts were formed "for the reclamation of any land within any city, which land is subject in any manner, to overflow or incursions from the tide or inland waters of the State" (California Water Code, Division 15, subsection 50110). Reclamation districts are commonly associated with local agency flood protection efforts, especially in the Sacramento Valley and San Joaquin Valley. In California's Central Valley, reclamation districts were formed as early as 1868 to reclaim land inundated with water and to use the land for agricultural purposes. |

**Table E-B-1. Types of Agencies Interviewed in the Information Gathering Process**

| | |
|---|---|
| Special Districts | Special districts are government agencies set up by local residents of an area to provide a specific service. Some of these districts, such as flood control districts, are formed for the sole purpose of controlling flood and stormwater to protect life and property. Other districts, such as flood control and water conservation districts, not only manage flood and stormwater to protect life and property but also are responsible for the beneficial use of the water, including replenishing the groundwater. Also, special districts may be water agencies that are responsible for managing and conserving water for domestic, industrial, agricultural, or hydroelectric energy. |
| Tribal Entities | Tribal entities are defined as Federally recognized tribes and tribal communities. The difference between Federally recognized tribes and other tribal communities is that the Federally recognized tribal entities are eligible for funding and services from the Bureau of Indian Affairs. |

## B.2 Agency Contacts by County

**Table E-B-2. Agency Contacts by the County of Meeting Attendance, Fall 2011**

| County | Agency Name | Name | Title/Role |
|---|---|---|---|
| Alameda | Alameda County Zone 7 | Carol Mahoney | Flood Control |
| Alameda | Alameda County Flood Control and Water Conservation District | Hank Akerman | Flood Control |
| Alameda | Alameda County Zone 7 | Jill Duerig | General Manager |
| Alameda | Alameda County Zone 7 | Joe Seto | |
| Alameda | Alameda County Flood Control and Water Conservation District | Ralph Johnson | Contractor |
| Alameda | Alameda County Flood Control and Water Conservation District | Rohin Saleh | Flood Control |
| Alpine | Alpine County Public Works | Brian Peters | Planning and Community Devl Director |
| Alpine | Alpine County Public Works | Zach Woods | Planner |
| Amador | Amador County Public Works | Cara Agustin | Planner |
| Amador | Amador City Public Works | Gene Manacebo | GM |
| Butte | City of Chico | Matt Thompson | |
| Butte | Butte County Public Works | Shawn O'Brien | Assistant Director, Public Works |
| Calaveras | Calaveras County Public Works | Clay Hawkins | Asst. CAO |
| Calaveras | Calaveras County Public Works | Ed Pattison | Planner |
| | | | |
| Calaveras | Calaveras County BD | Jeff White | |
| Calaveras | Calaveras County | Rebecca Willis | Planning Director |
| Calaveras | Calaveras County Public Works | Robert Pachinger | |
| Calaveras | Calaveras County Public Works | Tom Garcia | |
| Colusa | Colusa Basin Drainage District | Eugene Massa | |
| Colusa | Colusa County Public Works | James Bell | Assistant Director |
| Colusa | Reclamation District 108 | Lewis Bair | |
| Contra Costa | Gutierrez Consultants | Lidia Gutierrez | Principle |
| Contra Costa | Contra Costa County Flood Control and Water Conservation District | Mike Carlson | Supervising Civil Engineer, Flood |
| Contra Costa | Contra Costa County Flood Control and Water Conservation District | Mitch Avalon | Deputy Director of Flood Control |
| Contra Costa | Contra Costa County Flood Control and Water Conservation District | Paul R. Detjens | Senior Engineer |
| Del Norte | California USDA Government, NRCS | Andrea Souther | District Conservationist |
| Del Norte | Smith River Rancheria | Brad Cass | |
| Del Norte | Del Norte County OES | Cindy Henderson | Emergency Services Manager |
| Del Norte | Smith River Fire, Smith River Rancheria | Darrel Moorehead | Assistant Fire Chief, Crescent City |

**Table E-B-2. Agency Contacts by the County of Meeting Attendance, Fall 2011**

| County | Agency Name | Name | Title/Role |
|---|---|---|---|
| Del Norte | City of Crescent City | Eric Taylor | Associate Planner |
| Del Norte | City of Crescent City Police Department | Garret Scott | Police Lieutenant |
| Del Norte | Del Norte, Community Development | Heidi Kunstal | County Engineer |
| Del Norte | Del Norte County | Jay Sarina | County Administrative Officer |
| Del Norte | Yurok Indian Tribe | Ken Fetcho | |
| Del Norte | Del Norte County Community Development Dept. | Kevin Hamblin | Director of Community Development of Del Norte County |
| Del Norte | Del Norte County | Neal Lopez | Assistant County Administrator Officer |
| Del Norte | Del Norte County, Community Development | Randy Hooper | Director |
| Del Norte | National Weather Service | Reginald Kennedy | Hydrologist |
| Del Norte | Crescent City Harbor | Richard Young | Harbor Master |
| Del Norte | Del Norte Ambulance | Ron Sandler | CEO/Paramedic |
| Del Norte | Del Norte County Engineering | Rosanna Bower | Assistant Engineer |
| Del Norte | Caltrans Region 1 | Royal McCarthy | District Maintenance Engineer |
| Del Norte | City of Crescent City | Stephen Wakefield | Fire Chief, Crescent City Volunteer Fire Department |
| Del Norte | Del Norte County Sheriff's Office | Tim Athey | Operations Commander |
| Del Norte | Yurok Indian Tribe OES | Tim Sanderson | Emergency Services Specialist |
| Del Norte | Del Norte County, Engineering and Roads | Tina McCledon | Deputy Director |
| El Dorado | El Dorado County | Roger Trout | Director |
| Fresno | Fresno County Public Works | Alan Weaver | Public Works Director |
| Fresno | Fresno Irrigation District | Gary Serrato | General Manager |
| Fresno | Fresno Metropolitan Flood Control District | Jerry Lakeman | General Manager |
| Fresno | Fresno Irrigation District | Laurence Kimura | Assistant GM |
| Fresno | Fresno County Public Works | Lina Brosi | Public Works Director (assistant) |
| Fresno | Fresno Metropolitan Flood Control District | Susan Yang | |
| Fresno, Kings, Tulare | Kings River Conservation District | Steve Stadler | Deputy GM of Flood and Environmental Operations / Chief Engineer |
| Glenn | Glenn County Planning & Public Works | Annette Chavez | Deputy Director |
| Glenn | Glenn Colusa Irrigation District | Ben Pennock | |
| Glenn | City of Willows | Clay Dawley | |
| Glenn | City of Orland | Nancy Sailsbery | |
| Humboldt | Humboldt Bay Municipal Water District | Barry VanSickle | Superintendent |

**Table E-B-2. Agency Contacts by the County of Meeting Attendance, Fall 2011**

| County | Agency Name | Name | Title/Role |
|---|---|---|---|
| Humboldt | Humboldt Bay Municipal Water District | Carol Rische | General Manager |
| Humboldt | Humboldt County, Office of Emergency Services | Dan Larkin | Emergency Services Coordinator |
| Humboldt | City of Arcata, Public Works | Doby Class | Director of Public Works |
| Humboldt | Humboldt County, Public Works | Hank Seemann | Environmental Services Manager |
| Humboldt | City of Blue Lake | John Berchtold | Director |
| Humboldt | City of Eureka | Kurt Gierlich | City Engineer |
| Humboldt | City of Arcata, Public Works | Morgan Kessler | Deputy Director |
| Humboldt | City of Eureka | Robert Wall | Planning Director |
| Humboldt | Hoopa Valley Tribe | Rod Mendez | Director, OES |
| Humboldt | Caltrans Region 1 | Royal McCarthy | Caltrans District Maintenance Engineer |
| Humboldt | Caltrans Region 1 | Sebastina Cohen | Caltrans Hydraulics Engineer |
| Humboldt | Humboldt County, Office of Emergency Services | Tom Mattson | Director, OES Humboldt County |
| Humboldt | Blue Lake Rancheria | | |
| Humboldt | Humboldt County Flood Control District | | |
| Humboldt | Reclamation District 768 | | |
| Imperial | Imperial County | Armando Villa | Director of Planning & Development Services |
| Imperial | Imperial Irrigation District | Frank Fiorenza | Principle Engineer |
| Imperial | Imperial Irrigation District | Ismael Gomez | Chief Engineer |
| Inyo | Inyo County Sheriff | Bill Lutze | Sheriff |
| Inyo | Los Angeles City Department of Water and Power | Charlotte L. Rodrigues | Engineering/ Aqueduct Operations Manager |
| Inyo | Los Angeles City Department of Water and Power | David Martin | Watershed Manager |
| Inyo | Inyo County Public Works | Doug Wilson | Interim Public Works Director |
| Inyo | Inyo County Public Works | Jeff Ahlstrom | Interim Deputy Director of Public Works |
| Inyo | Inyo County Sheriff | Jeff Hollowell | Deputy Sheriff |
| Inyo | Inyo County Sheriff | Keith Hardcastle | Undersheriff |
| Inyo | Los Angeles City Department of Water and Power | Steve Butler | |
| Kern | Kern County | Aaron Leicht | Flood Manager |
| Kern | Semitropic Water Storage District | Craig Wallace | Staff Engineer |
| Kern | North Kern Water Storage District | Dana Munn | |
| Kern | City of Bakersfield | Don Richardson | Superintendent |
| Kern | Kern County Water Agency | Holly Melton | Water Resources Manager |
| Kern | Kern County Water Agency | Lauren Bauer | Water resources planner |

**Table E-B-2. Agency Contacts by the County of Meeting Attendance, Fall 2011**

| County | Agency Name | Name | Title/Role |
|---|---|---|---|
| Kern | Kern Delta Water District | Mark Mulkay | General Manager |
| Kings | Kings County | Darren Verdegaal | Public Works Engineer |
| Kings | Kings County/Lemoore | Holly Smyth | City Engineer |
| Kings | Kings County | Joe Neves | County Supervisor |
| Kings | Kings County | Kevin McAllister | Public Works Director |
| Kings | Kings River Conservation District | Steve Stadler | Deputy General Manager of Flood & Environmental Operations/Chief Engineer |
| Kings | City of Avenal | Steven Sopp | |
| Kings | Tulare Lake Basin Water Storage District | Walter Bricker | Board Member |
| Lake | Lake County Water Resources | Gary Hansen | Water Resources Prog. Coordinator |
| Lake | Lake County Water Resources | Tom Smythe | Water Resources Engineer |
| Lassen | Lassen County Road Department | Bob McGarva | Road Field Supervisor |
| Lassen | City of Susanville | Craig C. Platt | Director of Public Works |
| Lassen | City of Susanville | Dan Newton | City Engineer |
| Lassen | Lassen County OES | Dave Junette | OES Manager |
| Lassen | Lassen County Planning and Building Services Department | Gaylon Norwood | |
| Lassen | City of Susanville Fire Dept. | James Moore | Battalion Chief Fire Marshall |
| Lassen | City of Susanville | Jared Hancock | City Planner |
| Lassen | Lassen County Public Works Department | Larry Millar | Public Works Director |
| Lassen | Susanville Indian Rancheria | Laura Medvin | Rancheria Representative - Environmental Technician |
| Lassen | Lassen County Building Services Department | Steve Fuller | |
| Lassen | City of Susanville Fire Department | Ted Friedline | Fire Chief |
| Lassen | Susanville Indian Rancheria | Tim Keesey | Rancheria Representative |
| Lassen | City of Susanville Police Department | Tom Downing | Police Captain |
| Los Angeles | Los Angeles County Department of Public Works | Christopher Stone | Assistant Deputy Director, Water Resources Division |
| Los Angeles | Los Angeles County Department of Public Works | Gary Hildebrand | Assistant Deputy Director, Watershed Management Division |
| Madera | Madera County | Kheng Vang | County Engineer |
| Madera | Madera County | Reggie Hill | Director |
| Marin | Marin County Flood Control and Water Conservation District | Hugh Davis | Senior Engineer |

**Table E-B-2. Agency Contacts by the County of Meeting Attendance, Fall 2011**

| County | Agency Name | Name | Title/Role |
|---|---|---|---|
| Marin | Marin County Flood Control and Water Conservation District | Tracy Clay | Principal Civil Engineer |
| Mariposa | Mariposa Office of Emergency Services | Jim Middleton | Deputy Fire Chief |
| Mariposa | Mariposa County Public Works | Ken Schenk | Planning Director |
| Mariposa | Mariposa County Public Works | Peter Rei | Public Works Director |
| Mendocino | Mendocino County Water Agency | Dennis Slota | |
| Merced | Merced Irrigation District | Brian Kelly | Directory of Regulatory Compliance and Government Affairs, Water |
| Merced | Merced Irrigation District | Hicham Eltal | Deputy General Manager |
| Merced | Merced County Public Works | Kellie Jacobs | Floodplain Administrator |
| Merced | Merced County Public Works | Paul Fillebrown | Public Works and Planning Director |
| Merced | Merced County Public Works | Richard Schwarz | Public Works Assistant Director |
| Modoc | City of Alturas CEO - Planning Director | Chester Robertson | City CEO and Planning Director |
| Modoc | City of Alturas | Joe Picotte | Assistant Public Works Director |
| Modoc | Central Modoc Resource Conservation District | Kate Hall | Watershed Coordinator |
| Modoc | City of Alturas | Kim Hunter | Planning Director |
| Modoc | Modoc County, Transportation, Roads, Engineering | Mitch Crosby, PE | Deputy Director |
| Modoc | Modoc County Public Works | Rick Hironymous | Director |
| Mono | Mono County | Garrett Higred | Engineer |
| Mono | Mono County | Jeff Walters | Interim Public Works Director |
| Mono | Mono County | Kelly Garcia | Assistant Director, Public Works |
| Mono | Mono County Public Works | Tony Dublino | Community Development Department planner (Mono County Representative to IRWM Plan) |
| Monterey | Monterey County Water Resources Agency | Bill Phillips | Asst. GE |
| Monterey | Monterey County Water Resources Agency | Brent Buche | Manager of M&O |
| Monterey | Monterey County Water Resources Agency | Curtis Weeks | General Manager |
| Monterey | Monterey County Water Resources Agency | Rob Johnson | Manager, Water Management Division |
| Monterey | Monterey County Water Resources Agency | Tom Moss | Senior Engineer |
| Napa | Napa County Public Works | Julie Lucido | Project Manager |

**Table E-B-2. Agency Contacts by the County of Meeting Attendance, Fall 2011**

| County | Agency Name | Name | Title/Role |
|---|---|---|---|
| Napa | Napa County Public Works | Richard Thomasser | Supervisor |
| Nevada | Nevada County | Tyler Barrington | Senior Planner |
| Orange | Orange County Public Works | Kevin Onuma | Manager, Orange County PW, Flood Division |
| Orange | Orange County Public Works | Medhi Sohbani | Manager, Orange County PW, Flood Programs |
| Orange | Orange County Public Works | Penny Lew | Chief, Programming, Orange County PW, Flood Control Section |
| Placer | Placer County Flood Control and Water Conservation District | Brian Keating | District Manager |
| Plumas | Plumas County | Bob Perrault | Director of Public Works |
| Plumas | Plumas County Flood Control and Water Conservation District (FCWCD) | Randy Wilson | Plumas Co. FCWCD |
| Plumas | Feather River Coordinated Resource Management (CRM) | Gia Martynn | Watershed Coordinator |
| Riverside | Riverside County Flood Control and Water Conservation District | Diana Lebrun | Senior Engineer |
| Riverside | Coachella Valley Water District | Georgia Celehar-Bauer | Principle Stormwater Engineer |
| Riverside | Coachella Valley Water District | Tesfaye Demissie | Stormwater Engineer |
| Riverside | Riverside County Flood Control and Water Conservation District | Stuart McKibbin | Regulatory Division Manager |
| Sacramento | City of Sacramento | Bill Busath | Division Manager |
| Sacramento | City of Sacramento | Connie Perkins | Senior Engineer |
| Sacramento | Sacramento County Department of Water Resources | George Booth | Senior Engineer |
| Sacramento | Sacramento County Department of Water Resources | Don Thomas | Principal Engineer |
| Sacramento | Sacramento County Department of Water Resources | Michael Peterson | Director |
| Sacramento | Sacramento Area Flood Control Agency | Pete Ghelfi | Director of Engineering |
| Sacramento | Sacramento Area Flood Control Agency | Rick Johnson | Executive Director |
| Sacramento | American River Flood Control District | Tim Kerr | General Manager |
| Sacramento | Sacramento Area Flood Control Agency | Tim Washburn | Director of Planning |
| San Benito | San Benito Water District | Jeff Cattaneo | District Manager |
| San Benito | San Benito Water District | Jeff Cattaneo | District Manager |
| San Diego | San Diego County Flood Control District | Cid Tesoro | Flood Control District Manager |
| San Diego | San Diego City | Kris McFadden | Storm Water Division Director |
| San Diego | San Diego County Flood Control District | Sara Agahi | Staff Engineer |
| San Francisco | San Francisco Department of Public Works | Greg Braswell | |
| San Francisco | San Francisco Public Utilities | Marla Jurosek | Planning and Regulatory Compliance |

**Table E-B-2. Agency Contacts by the County of Meeting Attendance, Fall 2011**

| County | Agency Name | Name | Title/Role |
|---|---|---|---|
| | Commission | | Division Manager |
| San Francisco | San Francisco City/County | Michael Carlin | Assistant General Manager |
| San Francisco | San Francisco Public Utilities Commission | Molly Petrick | |
| San Joaquin | San Joaquin County Department of Public Works | Butch Waddle | Channel Maintenance Superintendent |
| San Joaquin | Stockton East Water District | Jeanette Thomas | Assistant General Manager |
| San Joaquin | San Joaquin Area Flood Control Agency | Jim Giottonini | Executive Director |
| San Joaquin | Stockton East Water District | John Green | Assistant General Manager |
| San Joaquin | San Joaquin County Department of Public Works | John Maguire | Flood Management Division Manager |
| San Joaquin | Stockton East Water District | Kevin Kauffman | General Manager |
| San Joaquin | San Joaquin Area Flood Control Agency | Roger Churchwell | Deputy Executive Director |
| San Joaquin | San Joaquin County Department of Public Works | Sameer Sharideh | Engineer III |
| San Joaquin | San Joaquin County Department of Public Works | Thomas Gau | Public Works Director |
| San Luis Obispo | San Luis Obispo County | Dave Flynn | Deputy Director |
| San Luis Obispo | San Luis Obispo County | Tim Tomlinson | Floodplain Manager |
| San Mateo | San Mateo County Public Works | Anne Stillman | Principal Engineer, Director for Flood Management |
| San Mateo | San Mateo County Public Works | James C. Porter, | Director, Public Works Department |
| San Mateo | San Francisquito Creek Joint Powers Authority | Kevin Murray | Director, San Francisquito Creek FPA |
| San Mateo | San Francisquito Creek Joint Powers Authority | Len Matterman | Director, San Francisquito Creek FPA |
| San Mateo | San Mateo City/County Association of Governments | Rich Napier | |
| Santa Barbara | County of Santa Barbara Public Works | Jon Frye | Engineering Manager |
| Santa Barbara | County of Santa Barbara Public Works | Maureen Spencer | Environmental Services Manager |
| Santa Barbara | County of Santa Barbara Public Works | Michael Parker | Floodplain Manager |
| Santa Barbara | County of Santa Barbara Public Works | Tom Fayram | Water Resources Deputy Director |
| Santa Cruz | County of Santa Cruz | Bill Phillips | |
| Santa Cruz | County of Santa Cruz | Bruce Laclergue | Flood Control Program Manager |
| Santa Cruz | County of Santa Cruz | John Presleigh | Director of Public Works |
| Santa Cruz | County of Santa Cruz | John Ricker | Health Services Agency |
| Santa Cruz | County of Santa Cruz | Lidia Gutierrez | |

**Table E-B-2. Agency Contacts by the County of Meeting Attendance, Fall 2011**

| County | Agency Name | Name | Title/Role |
|---|---|---|---|
| Santa Cruz | County of Santa Cruz | Mike Sapunor | |
| Santa Cruz | City of Watsonville Department of Public Works | Steve Palmisano | |
| Shasta | Shasta County Water Agency | Al Cathey | |
| Sierra | Sierra County | Brandon Pangman | Senior Planner |
| Sierra | Sierra County | Tim Beal | Director of Public Works |
| Siskiyou | County of Siskiyou Planning Department | Greg Plucker | Deputy Director of Planning |
| Siskiyou | County of Siskiyou Building Department | Mike Crawford | Deputy Director of Building Dept., Floodplain Administrator |
| Siskiyou | County of Siskiyou General Services | Randy Akana | Director of General Services |
| Siskiyou | City of McCloud - Community Services District | Richard Dinges | McCloud Community Services District |
| Siskiyou | County of Siskiyou OES | Robert L. Rowley | OES Deputy Director |
| Siskiyou | County of Siskiyou Public Works Department | Scott Sumner | Director of Public Works |
| Siskiyou | City of Yreka | | |
| Solano | Solano County Water Agency | David Okita | General Manager |
| Solano | Reclamation District 2068 | Mike Hardesty | |
| Stanislaus | Turlock Irrigation District | Bob Nees | Director of Water Resources and Regulatory |
| Stanislaus | Turlock Irrigation District | Debra Liebersbach | Water Planning Manager |
| Stanislaus | Turlock Irrigation District | Jason Carkeet | Strategic Issues and Planning Utility Analyst |
| Stanislaus | Stanislaus County Department of Public Works | Rick Rodrigues | Building Inspector III and Assistant Floodplain Administrator |
| Stanislaus | Stanislaus County Department of Public Works | Steve Treat | Chief Building Official |
| Stanislaus | Turlock Irrigation District | Wes Monier | Strategic Issues and Planning Manager |
| Sutter | Sutter County Public Works Water Resources Division | Daniel W. Peterson | Chief, Water Resources Division |
| Sutter | Sutter Butte Flood Control Agency | Dave Peterson | Acting Agency Engineer |
| Sutter | Sutter County Public Works Water Resources Division | Stan Cleveland | County Supervisor |
| Tehama | Tehama County Flood Control and Water Conservation District | Gary Antone | Director of Public Works |
| Trinity | Trinity River Restoration Program | Diana Clifton | Sr. Realty Spec. |
| Trinity | Trinity County Planning | Frank Lynch | Senior Planner |
| Trinity | Trinity County DOT | Jan Smith | Sr. Env. Comp Spec. |
| Trinity | Trinity Planning Department | Rick Tippett | Director |

**Table E-B-2. Agency Contacts by the County of Meeting Attendance, Fall 2011**

| County | Agency Name | Name | Title/Role |
|---|---|---|---|
| Trinity | 5C Program | Sandra Perez | 5C Program Manager |
| Trinity | Trinity Planning Department | Wes Scribner | Assistant Engineer |
| Tulare | Lower Tule River Irrigation District | Dan Vink | General Manager |
| Tulare | Tulare County Flood Control District | Denise Akins | County Administrators Office, Administrative Analyst - Water Resources |
| Tulare | Tulare County Flood Control District | James May | Flood Control District, Manager of Flood Control, Subdivisions and Encroachment Permits |
| Tulare | Kaweah Delta Water Conservation District | Mark Larsen | General Manager |
| Tulare | Kaweah Delta Water Conservation District | Shane Smith | Project/Administrative Coordinator |
| Tuolumne | Tuolumne County Public Works | Bev Shane | Director Community Resources Agency |
| Tuolumne | Tuolumne County Public Works | Duke York | Public Works Engineer |
| Tuolumne | Tuolumne County Public Works | Pete Kampa | General Manager |
| Tuolumne | City of Sonora Community Development | Rachelle Kellogg | City of Senora Community Development Director |
| Ventura | Ventura County Watershed Protection District | Sergio Vargas | Deputy Director, Planning and Regulatory Division |
| Ventura | Ventura County Watershed Protection District | Zia Hosseinipour | Manager, Advanced Planning Section |
| Yolo | Yolo County Flood Control and Water Conservation District | Chris Barton | Asst. General Manager |
| Yolo | Yolo County | John Bencomo | Director of Planning and Public Works |
| Yolo | City of Woodland | Mark Cocke | Senior Engineer Public Works Dept. |
| Yolo | Yolo County Flood Control and Water Conservation District | Tim O'Halloran | General Manager |
| Yuba | Yuba County Water Agency | Curt Aikens | General Manager |
| Yuba | Yuba County | Mike Lee | Public Works Director |
| Yuba | Three Rivers Levee Improvement Authority | Paul Brunner | Executive Director |
| Yuba | MBK Engineers | Ric Reinhardt | Local Flood Consultant |
| Yuba | Yuba County Water Agency | Scott Matyac | Water Resources Manager |

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# Appendix C: SFMP Metadata Template*

This appendix contains a sample of the metadata table used to categorize and process SFMP-relevant documents that were collected. These metadata, along with the documents, were then uploaded to a searchable database tool enabling the documents to be stored and displayed geographically on DWR's Flood Risk Document System website.

**This table is intended to serve as only an example of information collected. The information shown is not actual, final, or complete agency information.*

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## C.1 Instructions for Metadata Tool

# Instructions for SFMP Metadata Tool

### Purpose of the Metadata File

This template will capture information gathered during the Stage 3 information gathering process for the Statewide Flood Management Planning (SFMP) Program. The template will store specific information for a single agency including:

(1) ***Existing Documents Table (Metadata Table)*** - Filtered list of Existing Documents that will be used in either the risk, IFM, Infrastructure, or finance portion of the SFMP Project. This table presents the documents that are prepared for the SFMP Program. These documents may contain feasibility studies and studies performed by other agencies, reconnaissance information, information about the features that are currently being designed, information about features that are currently under construction, and information about features that were constructed.

(2) ***IFM Table*** - List of flood managment and IFM projects proposed by agencies. This table presents the Integrated Flood Management (IFM) information. IFM is an approach dealing with flood risk that recognizes the connection of flood management actions to water resources management, land use planning, environmental stewardship and sustainability. IFM also recognizes the importance of evaluating opportunies and potential impacts from a system perspective, and the importance of coordinating across geographic and agency boundaries.

### How to Use this Template

Step 1: Read the Instructions

Step 2: Rename file using "*Metadata*", Agency Abbreviation, and date (e.g., Metadata_SCV_WD_08-01-11.xls)

Step 3: Insert Filtered Documents into "Existing Document Table" .

Step 4: Fill in Infrastructure and Risk into table, as applicable.

Step 5: Fill in flood management and IFM projects from documents into IFM table and link IFM number to correct document in Metadata Table by entering relevant numbers in "IFM No." column.

Step 6: Spell check spreadsheet

Step 7: Submit to Agency Lead for review.

Step 8: Submit to Regional Coordinator for review by regional team area specific specialists (finance, information gathering, recommendations)

### Definition of Terms Used in SFMP Metadata Tool Worksheets

***General Rules for Using Template:***
***(1) All dates provided should be in mm/dd/yyyy format.***
***(2) All notes should be in sentence case*** (*Sentence case means* provide responses in complete sentence format with no abbreviations.
***(3) Do not add/delete columns.***
***(4) Do not change formatting of cells as tables will be compiled for use in SFMP Flood Future Report Appendices.***

The following are definition of terms used in this template:

**Existing Documents Table (Metadata Table)**

***Document Number*** - Document Number is Agency Abbreviation (from Agency Abbreviation List) followed by sequential numbering (e.g., SCV_WD_1)
***Document Title*** - Document title as listed on document cover page.
***Document Description*** - A one sentence description on what the document contains.
***Lead Agency*** - Insert lead agency name
***Date Document Published*** - Date document published in mm/dd/yyyy format. If report provides only month and year published date then use mm/01/yyyy format, if title provides only year use 01/01/yyyy format.
***Information Data Format*** - Select "10" to identify category is in correct format. If "other" is the format, please insert description of format.
***Category of Information in Document*** - Select "10" to identify category of information contained within document. Multiple categories may be selected.
***Filename*** - Use original agency filename if it describes document otherwise rename with agency abbreviation followed by year published and document description (e.g., SCV_WD_ 1995_flood_RPT.pdf). Make sure to use no special characters except underscores ("_") as the files will not upload to LifeRay site.
***Agency Name*** - Select agency name from pull-down list.
***County*** - Select County name from pull-down list.
***Stream Name*** - Insert stream name, where available.
***Watershed*** - Insert watershed name, where available.
***Hydrologic Region*** - Select Region from pull-down list.
***Information Source*** - Insert source of information (i.e., agency website, in-person meeting, follow-up contact with agency, or describe other)
***Date Collected*** - Insert date report/study/information was collected from the agency in mm/dd/yyyy format.
***Latitude*** - Use database mapping tool to identify Latitude or use information provided for agency headquaters
***Longitude*** - Use database mapping tool to identify Latitude or use information provided for agency headquaters
***Location Description*** - Insert description of study/report location, if available.
***Comments*** - Provide any notes/comments in sentence case.
***Infrastructure Type*** - Select type of infrastructure information provided in file, if applicable.
***Notes*** - Provide any notes/comments in sentence case related to the infrastructure file.
***IFM No*** - List all IFM numbers provided for project on IFM table (e.g., 1, 2, 3,...)

For "Is the Following Available" and "Table 1 Evaluation" sections of Table, Select Yes/No for categories that apply in report/study/document.
***Is the Following Available,***
***Completed Risk Analysis*** - Select Yes (i.e., 10) if document has information for "Lives at Risk" and/or "Expected Annual Damage" for "Current" and "Future" timeframe (Select all that apply).
***Loading*** - Select Yes (i.e., 10) if document has "Stage Frequency Curves" and/or "Flow Frequency Curves" for "Current" and "Future" timeframe (Select all that apply).
***Exposure*** - Select Yes (i.e., 10) if document has "Levee Fragility Curves (Probability for failure for Stage = interior toe, top of Levee, points in between) for "Current" and "Future" timeframe (Select all that apply).
***Consequence*** - Select Yes (i.e., 10) if document has "Relationship of Depth in Impact Area to Depth of Flooding" and/or "Relationship of Depth in Impact Area to Potential Lives Lost" for "Current" and "Future" timeframe (Select all that apply).
***Table 1 Evaluation-***
***Has Adequate*** - Select Yes (i.e., 10) for all that apply in document: "Recent Information" or "Dated Consequence Information".
***Has Components for Risk Assessment*** - Select Yes (i.e., 10) if document hasSelect Yes (i.e., 10) for all that apply in document: "Missing Inadequate Consequence Information", "Missing or Inadequate Hazard Information", and/or "Missing or Inadequate Exposure Information".
***Incomplete Risk Assessment Components*** - Select Yes (i.e., 10) for all that apply in document: "Incomplete Hazard Information", "Incomplete Exposure Information", and/or "Incomplete Consequence Information".

### Definition of Terms Used in SFMP Metadata Tool Worksheets (Continued)

***General Rules for Using Template:***

***(1) All dates provided should be in mm/dd/yyyy format.***
***(2) All notes should be in sentence case*** (*Sentence case means* provide responses in complete sentence format with no abbreviations.
***(3) Do not add/delete columns.***
***(4) Do not change formatting of cells as tables will be compiled for use in SFMP Flood Future Report Appendices.***

The following are definition of terms used in this template:

**IFM Table**

***IFM No*** - Input the IFM No that is unique for each document ( number sequencially starting with 1). This number will be unique to each project and will used to link project to each document that describes project in Metadata Table. This number is unique to each Metadata Tool uploaded to Database.

***Partnering Agencies No*** - Input the unique Agency/ Agencies Names

***Project Name*** - Input the name of the project.

***Project Type*** - Select each type of project that applies (i.e., FM, IFM, Conjunctive Use, Ecosystem Restoration, Other). If "Other" is selected, please describe in "Descrption of Other" column.

***Project in*** - Select each status that applies to project (i.e., Current IRWM, Ongoing IRWM Update, Other). If "Other "is selected, please describe in "Descrption of Other" column.

***Project Purpose*** - Describe briefly the purpose of the projectin sentence case. For Example, explain the goal of this project.

***Description of Project*** - Description of the project in sentence case.

***Project Status*** - Input project status (Reconnaissance, Complete/constructed, Design Phase, Feasibility Phase, Construction/Ongoing, Other) from pull-down menu.

***Funding Source*** - Input all funding sources for the project, if available.

***Project Costs*** - Input total costs of the project in dollars ($). If the project is in progress or on hold, include the projected costs. If the costs are "projected costs", please mention it in the "IFM Notes".

***IFM Notes*** - Provide any notes/comments in sentence case related to FM or IFM projects. Include any additional notes that will be useful for the information users. Also, include the whether the costs are actual costs or projected costs.

**NOTE: Be Sure to link IFM No in Column A to correct document in Metadata Table using "IFM No." in column AK.**

## C.2 Example Metadata Table

List of Documents/Information (Metadata Table)

tadata Ta

| Document No | Title | Document Description | Lead Agency Name | Date Document Published | Information/Data Format: Electronic: GIS | Word | Excel | PDF | CADD | Hard Copy | Other | Other (Describe) | Category: Infrastructure | IFM/FM Projects | Financial | Risk | Filename | Agency Name | County | Stream Name | Watershed | Hydrologic Region | Information Source | Date Collected | Latitude | Longitude | Location Description | Comments | Infrastructure information: Levees | Channels | Dams | Debris Basins | Pump Stations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Sweeney Creek Flood Reduction Study - Additional Alternative Evaluation | Analyzes the benefit cost ratio of raising the finish floor elevation of house in the Sweeney Creek area and compares it to the recommended project and alternative projects as described in the Sweeney Creek Flood Reduction study. | Solano County Water Agency | 1/31/2007 | | | | ✓ | | | | | | | ✓ | ✓ | MemoSweeneyCreekFlood20070131WestYost | Solano County WA | Solano | Sweeney Creek | Elmira | Sacramento River | Solano County Water Agency | 10/5/2011 | 38.38553 | -121.86155 | Sweeney Creek is located northeast of Vacaville and southwest of Dixon in Solano County, California. Document looks at the area around the following streets Hartley Road, Cole Road, Udell Drive, Locke Road, Store Road, Esquivel Road and Heather Road. | Includes a benefit cost analysis of raising a house to help prevent flooding. The house raising project has the highest benefit-cost ratio and the house raising project will protect the most number of homes from flooding. | | | | | |
| 2 | Integrated Regional Water Management Plan and Strategic Plan | Identifies the major sources of water supply, existing demands and water resources-related issues. | Solano County Water Agency | 2/1/2005 | | | | ✓ | | | | | | ✓ | | | IntergratedManagementPlan20050201 | Solano County WA | Solano | | | San Francisco Bay | Solano County Water Agency | 10/5/2011 | 38.39634 | -121.95993 | The plan area is for Solano County, California. Solano County includes the cities of Benicia, Fairfield, Vacaville and Dixon. | Sections include a supply and demand, explain sources of water and where the water is going. Includes strategic plan and how the Agency will allocate resources. The Agency plans to commit resources to flood control projects. | | | | | |
| 3 | Solano County 5 Year Capital Facilities Improvement Plan | Solano County 5 year capital facilities improvement plan for fiscal year 2010/2011 - 2014/2015. | Solano County Department of General Services | 12/14/2010 | | | | | | | ✓ | .ppt | | | | ✓ | PresentationCapitalImprovements20101214Solano | Solano County WA | Solano | | | San Francisco Bay | Solano County Water Agency | 10/6/2011 | 38.39634 | -121.95993 | The presentation area is for Solano County, California. Pump locations in in Winters, California. | Provides 5-year funding requirements for departments and all projects. Tables for funding trends are included. The presentation mentions Lake Solano Sewage Pump replacement project as complete or nearing completion. | | | | | |
| 4 | Ready for the Flood | Facts regarding Flooding in Solano County, California. | Solano County Water Agency | 11/1/2009 | | | | ✓ | | | | | ✓ | | | | FactSheet20091101SCWA | Solano County WA | Solano | Tributaries | Sacramento River | Sacramento River | Solano County Water Agency | 10/6/2011 | 38.39634 | -121.95993 | Solano County, California | Document provides background information, facts about flooding in Solano County and information about the Solano County Water Agency. List responsible agencies. Solano County maintains the Ulatis Flood Control project and Green Valley Flood Control project, providing flood protection for the area. | | | | | |
| 5 | Use Attainability Analysis for New Alamo Creek and Ulatis Creek, Technical Memorandum No. 1, Hydrologic and Physical Characteristics of Alamo Creek, Ulatis Creek and Cache Slough | A technical memorandum prepared in support of Use Attainability Analysis. | City of Vacaville | 8/1/2007 | | | | ✓ | | | | | | | | ✓ | MemoAttainabilityAnalysis20070801Vacaville | Solano County WA | Solano | Alamo Creek, Ulatis Creek and Cache Slough | Sacramento River | Sacramento River | Solano County Water Agency | 10/6/2011 | 38.34744 | -121.90502 | Solano County, California | Provides a watershed description, physical characteristics of channels, hydrologic characteristics, and stream flow patterns. Field measurements and observations were made to determine patterns in flow during the irrigation season. | | | | | |

| re Type | | IFM | Risk Information | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Is the following available | | | | | | | | | | | | | | | Table 1 Evaluation | | | | | | | | | | | | | |
| | | | Completed Risk Analysis | | | | Loading | | | | Exposure | | | Consequence | | | | Has Adequate | | Has Components fo | | | Incomplete Risk | | | No Assessment Availa | | | | |
| Other | Notes | IFM_NO | Lives at risk | Expected Annual Damage In | Current | Future | Stage Frequency Curves | Flow Frequency Curves | Current | Future | Levee Fragility Curves (Probability for failure for Stage = interior toe, top of Levee, points in between) | Current | Future | Relationship of Depth in Impact Area to Depth of Flooding | Relationship of Depth in Impact Area to Potential Lives Lost | Current | Future | Recent Information | Dated Consequence Information | Missing Inadequate Consequence Information | Missing or Inadequate Hazard Information | Missing or Inadequate Exposure Information | Incomplete Hazard Information | Incomplete Exposure Information | Incomplete Consequence Information | No Assessment Available | Assessment Out-of-date | Assessment Does not Apply Minimum Standards | Risk Notes |
| | | | | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | | | | | | | | | Preventing homes from flooding is the focus of the benefit cost project. Tables compare the surveyed houses finish floor elevation with the modeled existing conditions for flooding. 25-year, 50-year, and 100-year storm flood elevation were looked at. The cost to raise a 1,500-2400 sqft house with a slab on grade fountain is approximately $75,000. |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ✓ | Dry detention basins, pervious surfaces | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | ✓ | ✓ | | | | | | | | | | | | | | | | | | | | | | Provides data on how many times per year a particular stream exceeds a certain cfs. Example streams flows in excess of 100 cfs were exceeded about 12% of the time, with the exception of February, which excesses 100 cfs about 20% of the time during water years 1998-2006. |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

## C.3 IFM Projects Metadata Template

| IFM No | Partnering Agencies Name | Project Name | Project Type | | | | | | Project in | | | | Project Purpose | Description of Project | Project Status | Funding Source | Project Costs | IFM Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | FM | IFM | Conjunctive Use | Ecosystem | Other | Description of Other | Current IRWM | Ongoing IRWM Update | Other | Description of Other | | | | | | |
| | | | | | | | | | | | | | | | | | | |
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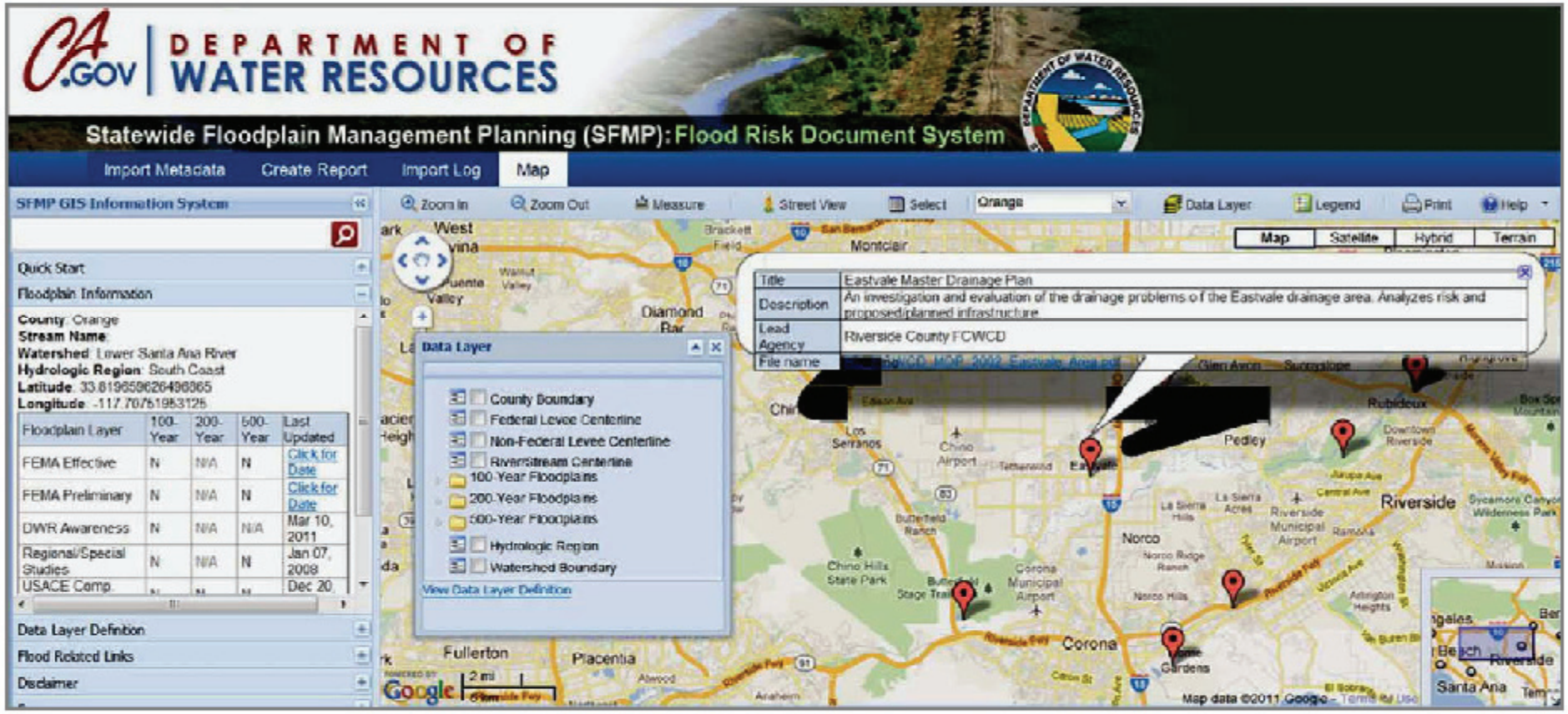
| | | | | | | | | | | | | | | | | | | |
| | | | Yes/No | | | | | | Yes/No | | | | | | Pull Down | | | |

## C.4 DWR Website Screenshot



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# Appendix D: Infrastructure Inventory Supplemental Information

This appendix contains supplemental information on how the statewide infrastructure inventory was derived and on the resulting numbers. Graphic displays of GIS-mapped infrastructure are included for each hydrologic region, as well as a tabulated count of infrastructure information collected for each county.

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## D.1 Infrastructure Inventory Information Sources

The inventory of infrastructure comes from a variety of sources. Ideally, each county agency would have a thorough understanding of the flood management infrastructure existing within its boundaries. However, during the information gathering meetings with the agencies, it became clear that this was not the case. Due to the fragmented ownership of existing infrastructure among many different agencies within each county, none of the agencies were familiar with all existing infrastructure countywide.

Although agencies in 15 counties provided GIS-based infrastructure mapping, none of these was a comprehensive inventory for the entire county. Information submitted to the SFMP team is shown in the county infrastructure maps in *Attachment D: Summary of Exposure and Infrastructure Inventory by County*.

In addition to the information provided by local agencies, three statewide infrastructure databases were used to develop the infrastructure inventory—the California Levee Database (CLD), the National Flood Hazard Layer (NFHL), and DWR Bulletin 17-00,2000. The CLD was created by DWR and contains data about the centerline of an embankment for controlling rivers, coastal areas, or other bodies of water. In creating the CLD, all structures that could hold back water were digitized for flood-planning purposes. The NFHL is a computer database that contains the flood hazard map information from FEMA's Flood Map Modernization program. These map data are from Digital Flood Insurance Rate Map databases and Letters of Map Revision. DWR Bulletin 17-00, 2000 is a database of existing dams across the state. Information from all the statewide databases and the local agencies was plotted on the county maps in Attachment D. Duplicate information between the sources was removed to avoid counting the same flood control structure multiple times. This compilation of GIS data is shown in the regional maps in this appendix and in the county maps in Attachment D. The regional maps in this appendix also show the number of each type of infrastructure, based on the GIS sources.

In some cases, local agencies submitted pdf maps of existing infrastructure during the information gathering meetings. In many more cases, agencies submitted reports with embedded figures showing some existing infrastructure within the county. To incorporate these sources of information, the maps were compared to the GIS information plotted on the county maps. Tables E-D-3 and E-D-4 present infrastructure information for each county and statewide, respectively.

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## D.2 Infrastructure Maps by Hydrologic Region

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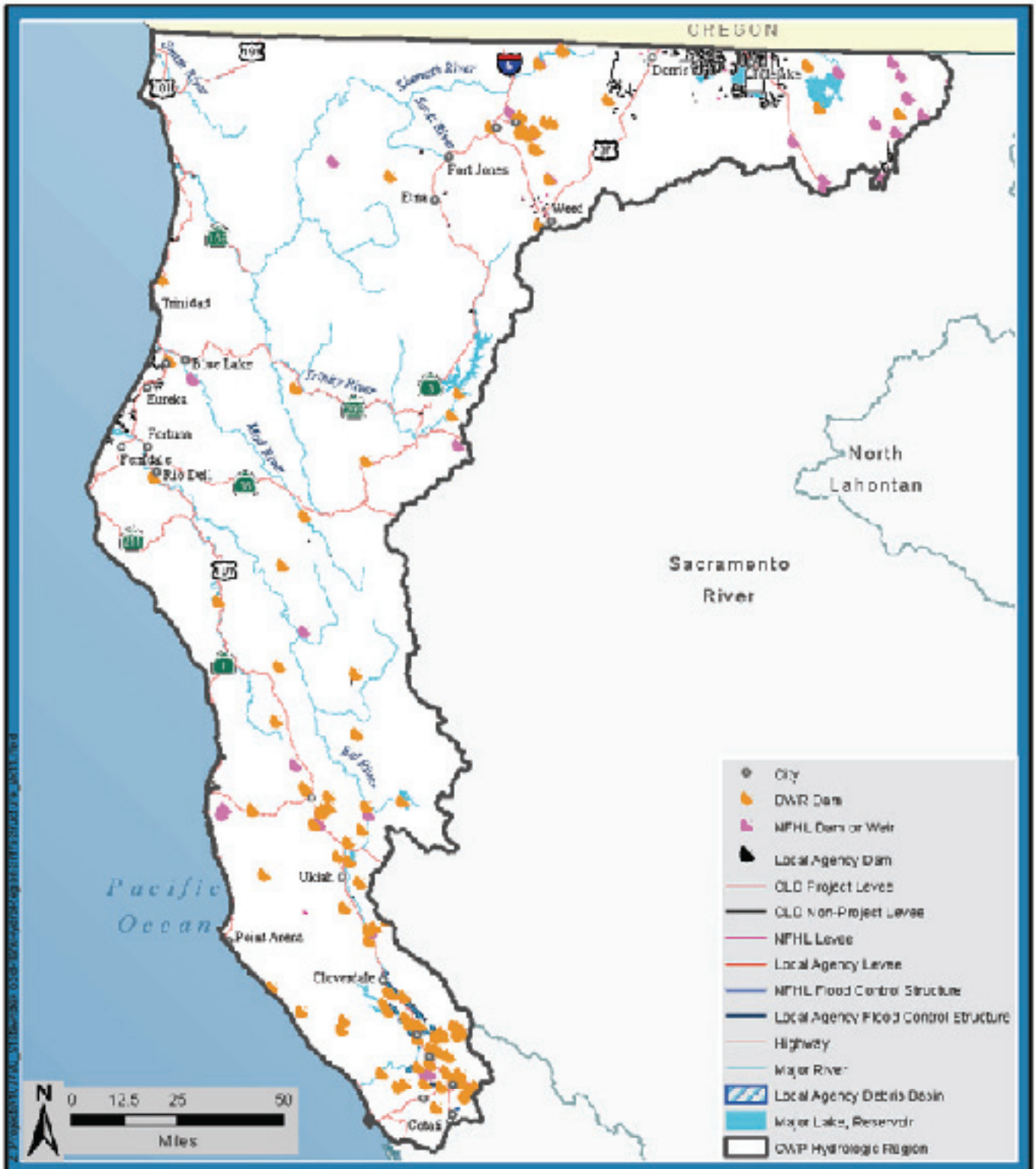



## North Coast Infrastructure

| | | | |
|---|---|---|---|
| **Total Miles of Levee:** | 685 | **Total Miles Flood Control Structures:** | 16 |
| CLD Project Levee (miles): | 0 | NFHL Flood Control Structures (miles): | 6 |
| CLD Non-Project Levee (miles): | 653 | Local Agency Flood Control Structures (miles): | 8 |
| NFHL Levee (miles): | 559 | | |
| Local Agency Levee (miles): | 32 | | |
| **Total Number of Dams:** | 116 | | |
| DWR Dams: | 110 | | |
| NFHL Dams and Weirs: | 66 | DWR/USGS Reservoirs: | 29 |
| Local Agency Dams: | 0 | Local Agency Debris Basins: | 0 |

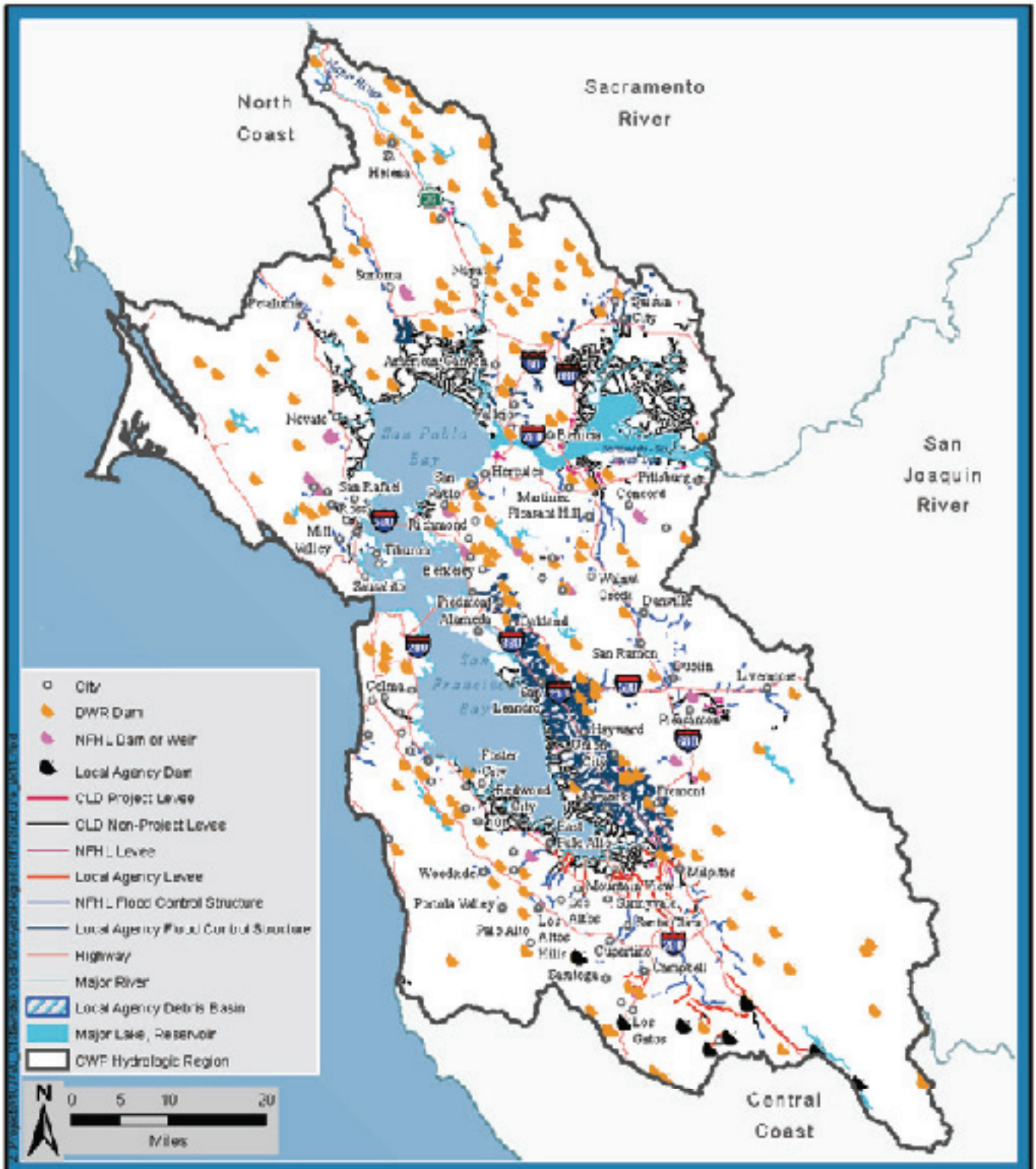
**Figure E-D.2-1** DRAFT

Summary of Available Flood Infrastructure Information, North Coast Hydrologic Region

STATEWIDE FLOOD MANAGEMENT PLANNING PROGRAM

FloodSAFE CALIFORNIA

December 21, 2012




## San Francisco Bay Infrastructure

| | | | |
|---|---|---|---|
| **Total Miles of Levee:** | **1,449** | **Total Miles Flood Control Structures:** | **594** |
| CLD Project Levee (miles): | 0 | NFHL Flood Control Structures (miles): | 280 |
| CLD Non-Project Levee (miles): | 1,327 | Local Agency Flood Control Structures (miles): | 314 |
| NFHL Levee (miles): | 1,261 | | |
| Local Agency Levee (miles): | 122 | | |
| **Total Number of Dams:** | **186** | | |
| DWR Dams: | 178 | | |
| NFHL Dams and Weirs: | 44 | DWR/USGS Reservoirs: | 42 |
| Local Agency Dams: | 8 | Local Agency Debris Basins: | 43 |

**Figure E-D.2-2** DRAFT

Summary of Available Flood Infrastructure Information, San Francisco Bay Hydrologic Region

STATEWIDE FLOOD MANAGEMENT PLANNING PROGRAM

December 21, 2012

## Central Coast Infrastructure

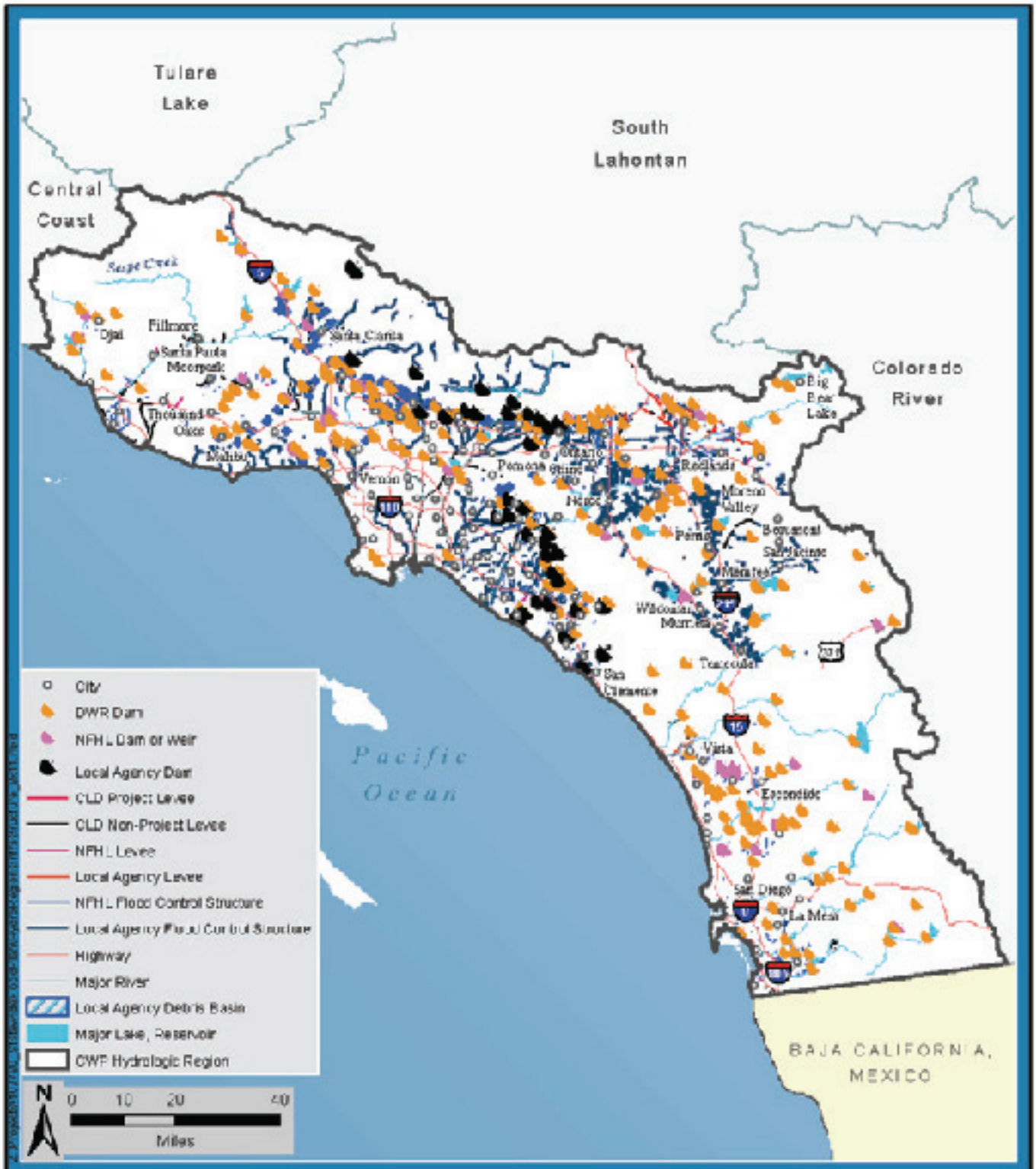
| | | | |
|---|---|---|---|
| **Total Miles of Levee:** | **189** | **Total Miles Flood Control Structures:** | **34** |
| CLD Project Levee (miles): | 0 | NFHL Flood Control Structures (miles): | 34 |
| CLD Non-Project Levee (miles): | 157 | Local Agency Flood Control Structures (miles): | 0 |
| NFHL Levee (miles): | 71 | | |
| Local Agency Levee (miles): | 32 | | |
| **Total Number of Dams:** | **73** | | |
| DWR Dams: | 71 | | |
| NFHL Dams and Weirs: | 52 | DWR/USGS Reservoirs: | 21 |
| Local Agency Dams: | 2 | Local Agency Debris Basins: | 211 |

**Figure E-D.2-3** DRAFT

Summary of Available Flood Infrastructure Information, Central Coast Hydrologic Region

STATEWIDE FLOOD MANAGEMENT PLANNING PROGRAM

December 21, 2012




## South Coast Infrastructure

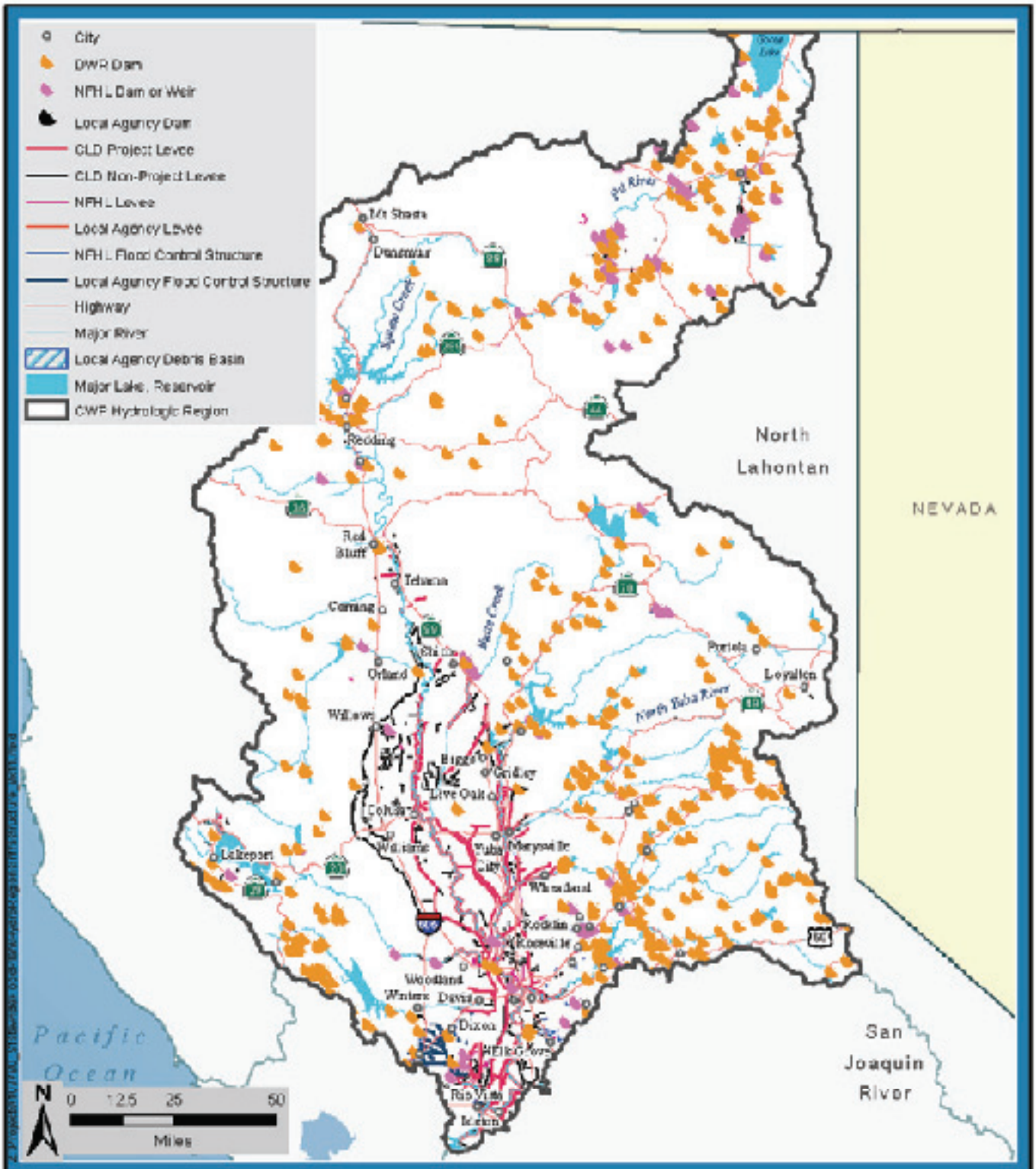
| | | | |
|---|---|---|---|
| **Total Miles of Levee:** | **731** | **Total Miles Flood Control Structures:** | **1,912** |
| CLD Project Levee (miles): | 0 | NFHL Flood Control Structures (miles): | 459 |
| CLD Non-Project Levee (miles): | 689 | Local Agency Flood Control Structures (miles): | 1,454 |
| NFHL Levee (miles): | 419 | | |
| Local Agency Levee (miles): | 42 | | |
| **Total Number of Dams:** | **323** | | |
| DWR Dams: | 281 | | |
| NFHL Dams and Weirs: | 91 | DWR/USGS Reservoirs: | 64 |
| Local Agency Dams: | 42 | Local Agency Debris Basins: | 557 |

**Figure E-D.2-4** DRAFT

Summary of Available Flood Infrastructure Information, South Coast Hydrologic Region

STATEWIDE FLOOD MANAGEMENT PLANNING PROGRAM

December 21, 2012




## Sacramento River Infrastructure

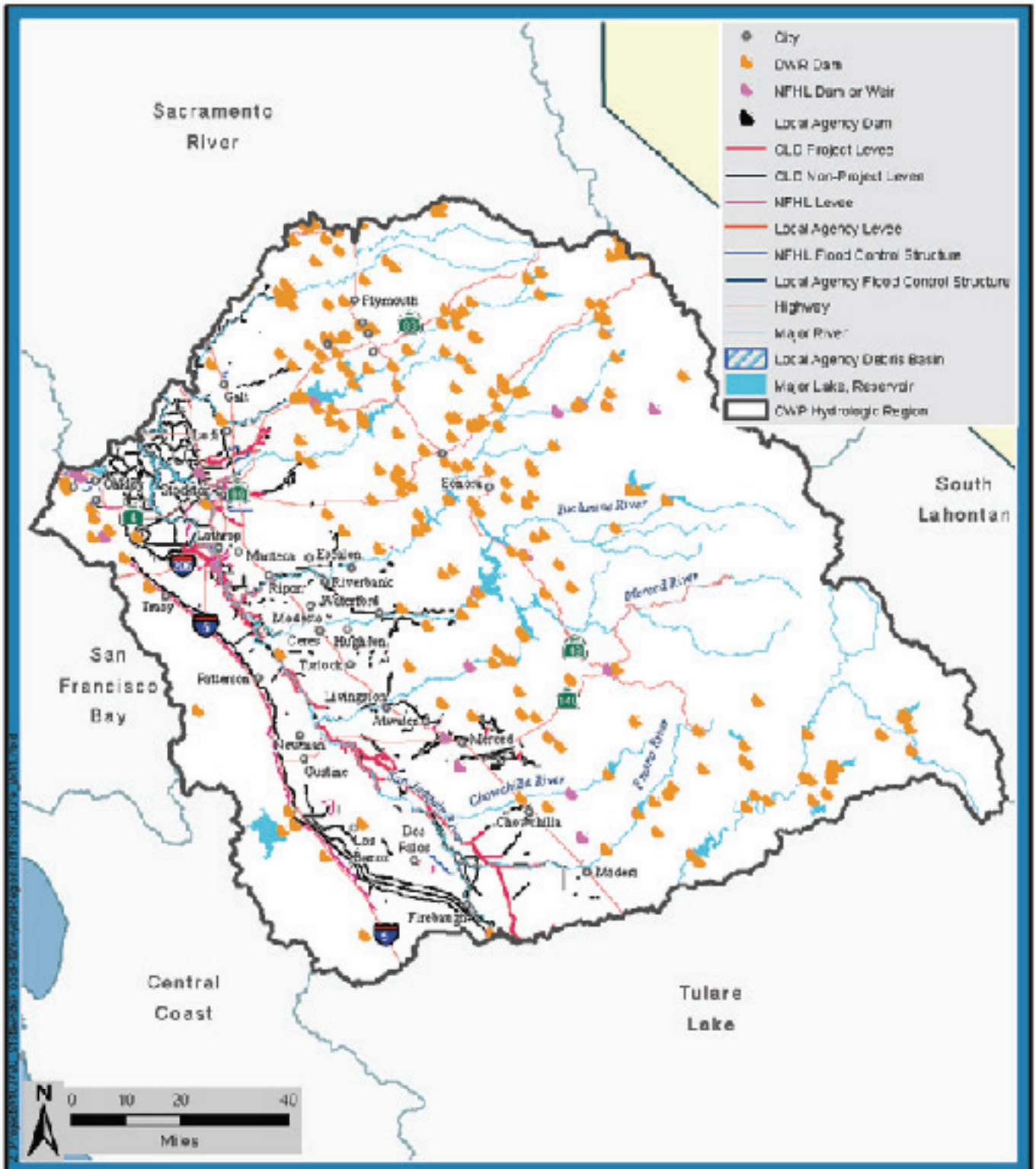
| | | | |
|---|---|---|---|
| **Total Miles of Levee:** | **2,285** | **Total Miles Flood Control Structures:** | **205** |
| CLD Project Levee (miles): | 1,381 | NFHL Flood Control Structures (miles): | 18 |
| CLD Non-Project Levee (miles): | 1,207 | Local Agency Flood Control Structures (miles): | 183 |
| NFHL Levee (miles): | 1,389 | | |
| Local Agency Levee (miles): | 1 | | |
| **Total Number of Dams:** | **422** | | |
| DWR Dams: | 422 | | |
| NFHL Dams and Weirs: | 165 | DWR/USGS Reservoirs: | 79 |
| Local Agency Dams: | 0 | Local Agency Debris Basins: | 23 |

**Figure E-D.2-5** DRAFT

Summary of Available Flood Infrastructure Information, Sacramento River Hydrologic Region

STATEWIDE FLOOD MANAGEMENT PLANNING PROGRAM

December 21, 2012




## San Joaquin River Infrastructure

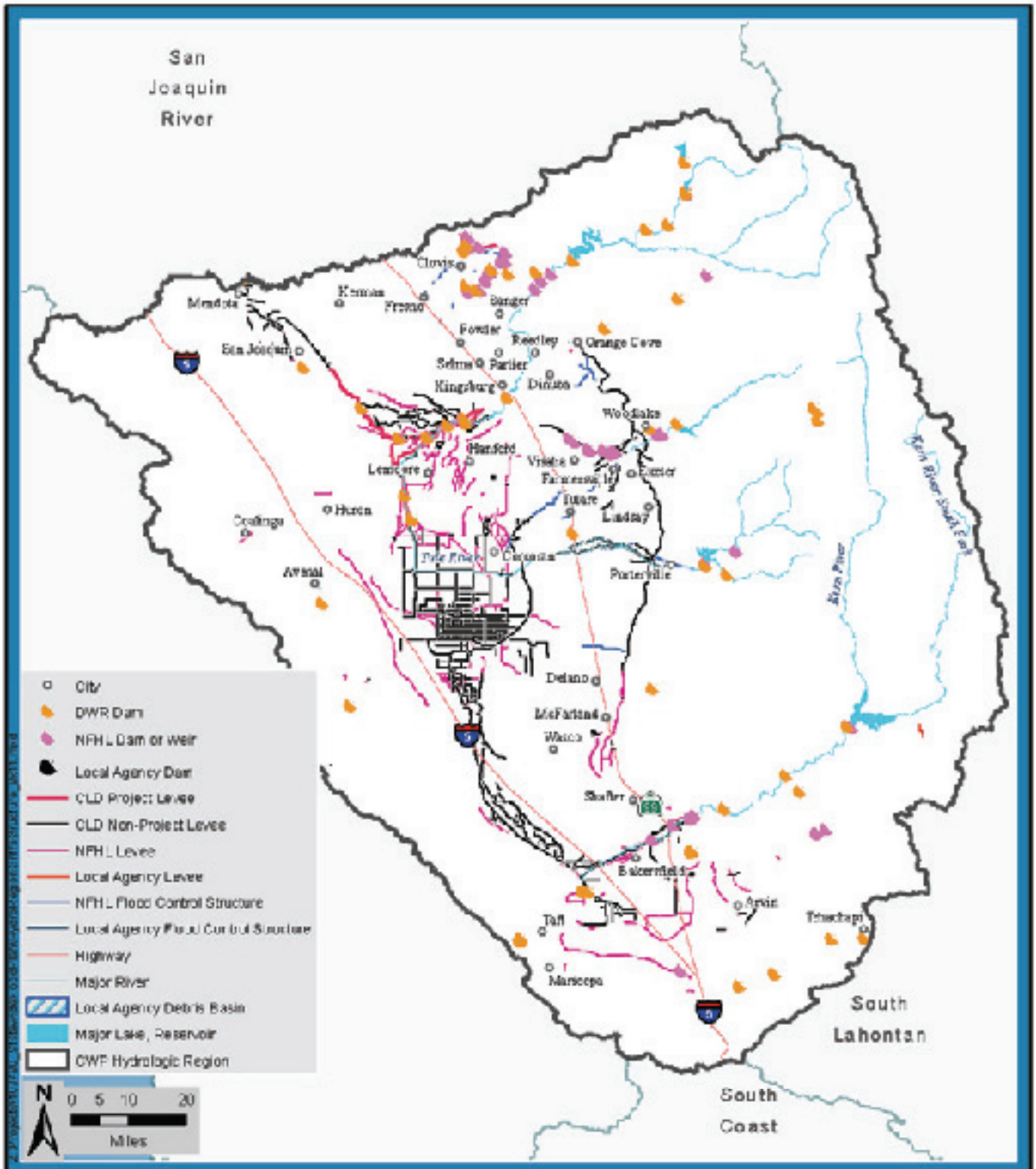
| | | | |
|---|---|---|---|
| **Total Miles of Levee:** | **2,436** | **Total Miles Flood Control Structures:** | **30** |
| CLD Project Levee (miles): | 442 | NFHL Flood Control Structures (miles): | 30 |
| CLD Non-Project Levee (miles): | 1,994 | Local Agency Flood Control Structures (miles): | 0 |
| NFHL Levee (miles): | 2,322 | | |
| Local Agency Levee (miles): | 0 | | |
| **Total Number of Dams:** | **261** | | |
| DWR Dams: | 261 | | |
| NFHL Dams and Weirs: | 65 | DWR/USGS Reservoirs: | 68 |
| Local Agency Dams: | 0 | Local Agency Debris Basins: | 0 |

**Figure E-D.2-6** DRAFT

Summary of Available Flood Infrastructure Information, San Joaquin River Hydrologic Region

STATEWIDE FLOOD MANAGEMENT PLANNING PROGRAM

December 21, 2012




## Tulare Lake Infrastructure

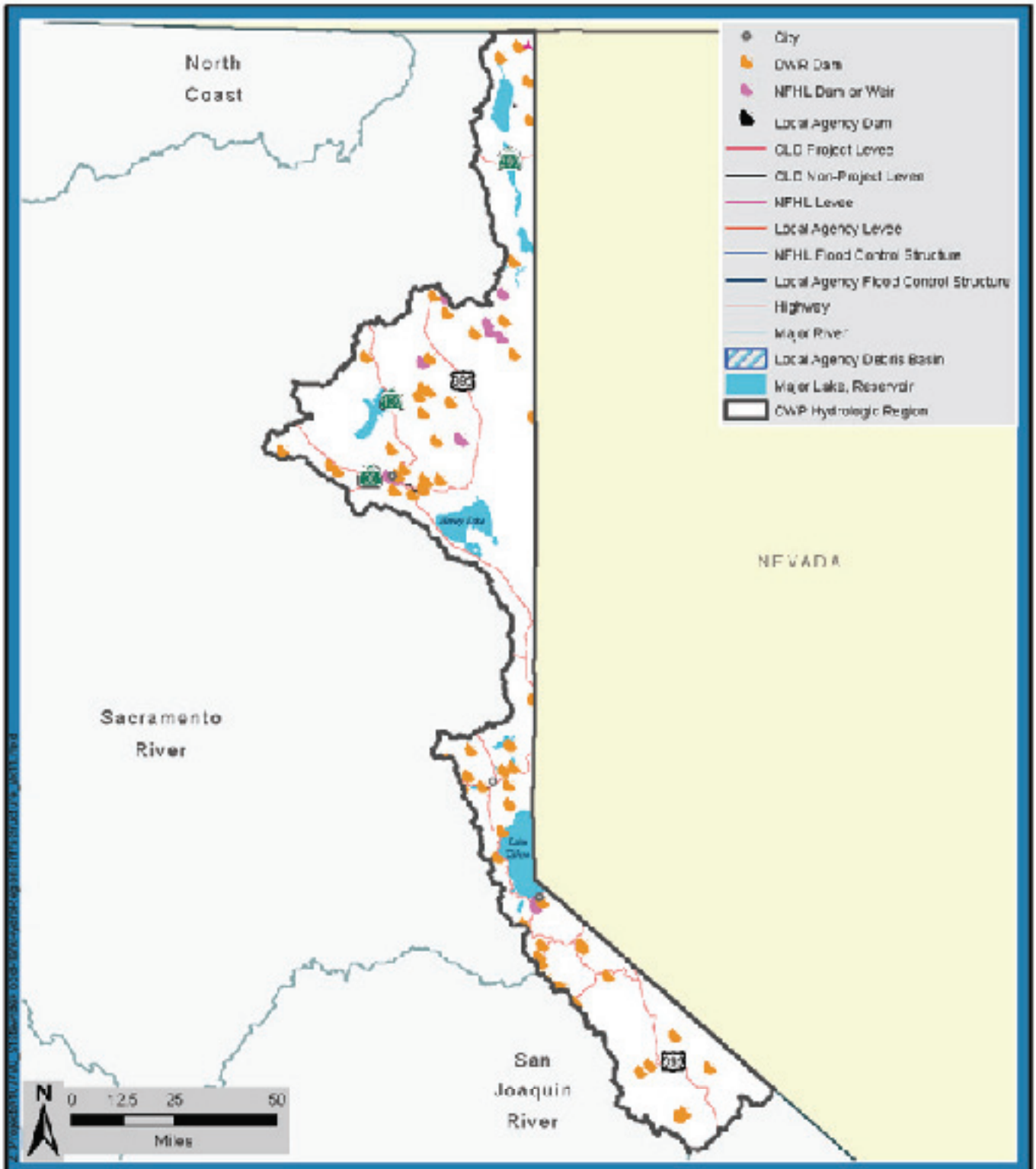
| | | | |
|---|---|---|---|
| **Total Miles of Levee:** | **1,909** | **Total Miles Flood Control Structures:** | **99** |
| CLD Project Levee (miles): | 152 | NFHL Flood Control Structures (miles): | 99 |
| CLD Non-Project Levee (miles): | 1,755 | Local Agency Flood Control Structures (miles): | 0 |
| NFHL Levee (miles): | 2,186 | | |
| Local Agency Levee (miles): | 2 | | |
| **Total Number of Dams:** | **61** | | |
| DWR Dams: | 51 | DWR/USGS Reservoirs: | 7 |
| NFHL Dams and Weirs: | 55 | Local Agency Debris Basins: | 0 |
| Local Agency Dams: | 0 | | |

**Figure E-D.2-7** DRAFT

Summary of Available Flood Infrastructure Information, Tulare Lake Hydrologic Region

STATEWIDE FLOOD MANAGEMENT PLANNING PROGRAM

December 21, 2012




## North Lahontan Infrastructure

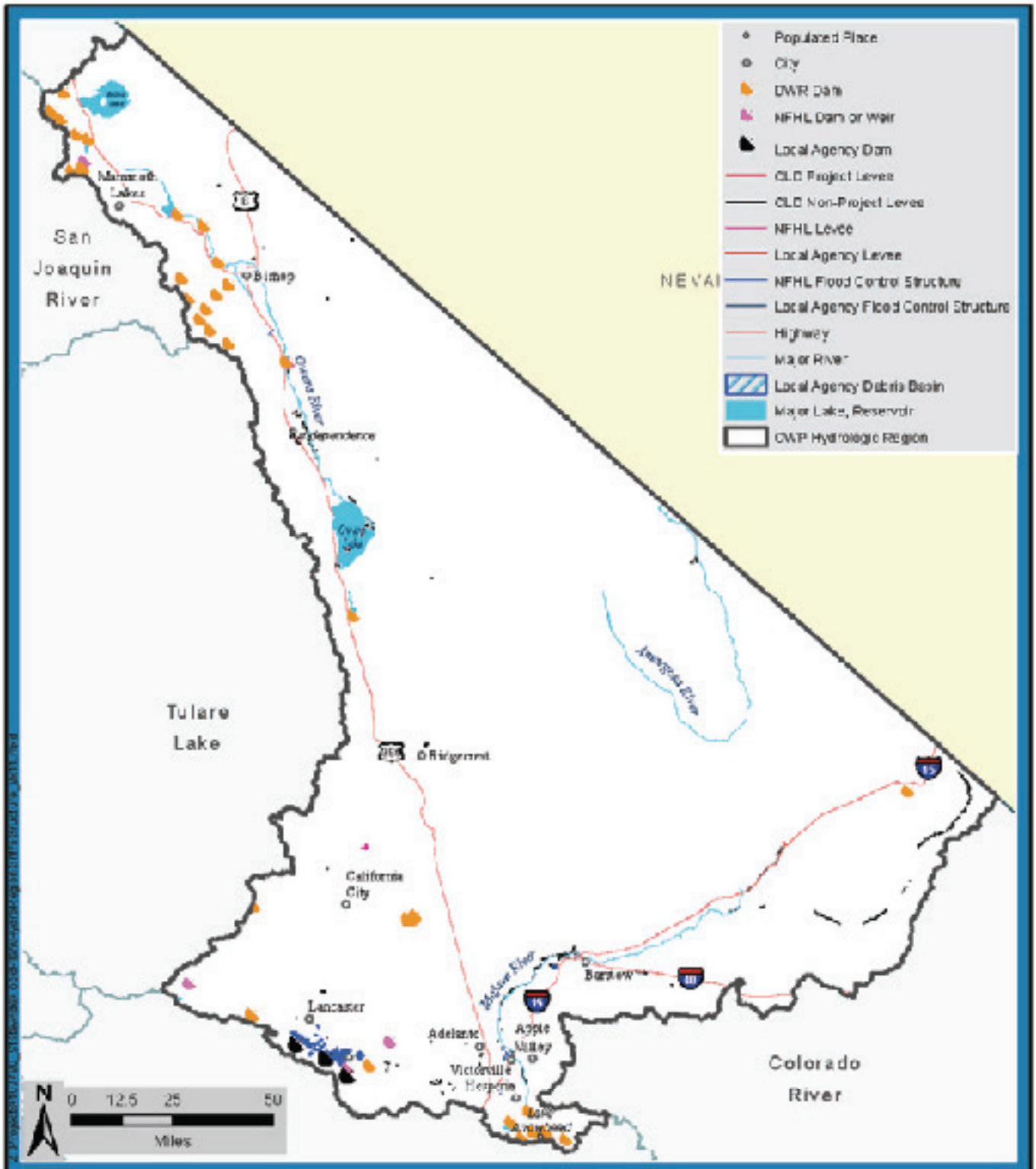
| | | | |
|---|---|---|---|
| **Total Miles of Levee:** | 9 | **Total Miles Flood Control Structures:** | 0 |
| CLD Project Levee (miles): | 0 | NFHL Flood Control Structures (miles): | 0 |
| CLD Non-Project Levee (miles): | 9 | Local Agency Flood Control Structures (miles): | 0 |
| NFHL Levee (miles): | 18 | | |
| Local Agency Levee (miles): | 0 | | |
| **Total Number of Dams:** | **65** | | |
| DWR Dams: | 65 | | |
| NFHL Dams and Weirs: | 25 | DWR/USGS Reservoirs: | 39 |
| Local Agency Dams: | 0 | Local Agency Debris Basins: | 0 |

**Figure E-D.2-8** DRAFT

Summary of Available Flood Infrastructure Information, North Lahontan Hydrologic Region

STATEWIDE FLOOD MANAGEMENT PLANNING PROGRAM

December 21, 2012




## South Lahontan Infrastructure

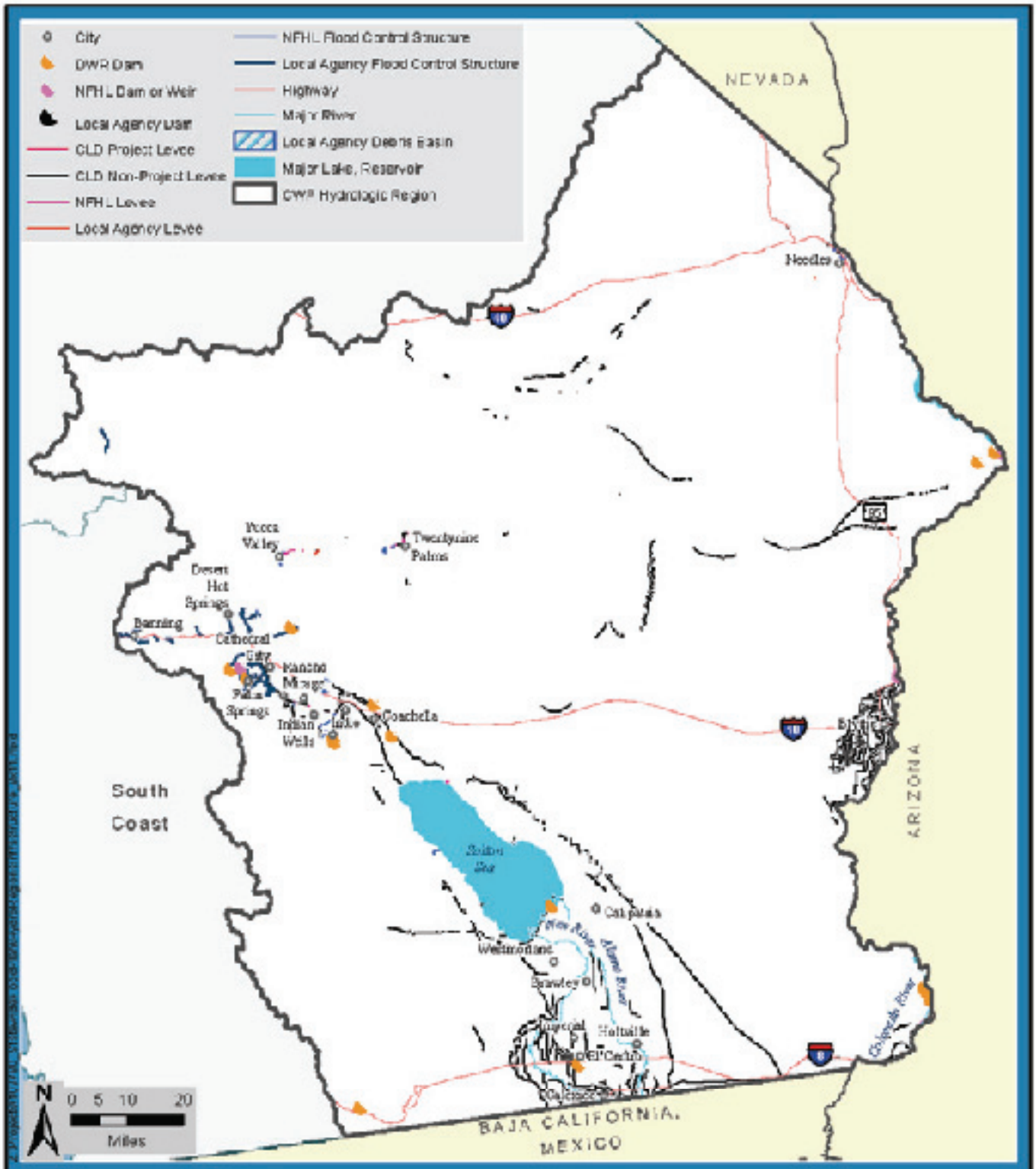
| | | | |
|---|---|---|---|
| **Total Miles of Levee:** | **203** | **Total Miles Flood Control Structures:** | **4** |
| CLD Project Levee (miles): | 0 | NFHL Flood Control Structures (miles): | 3 |
| CLD Non-Project Levee (miles): | 202 | Local Agency Flood Control Structures (miles): | 1 |
| NFHL Levee (miles): | 41 | | |
| Local Agency Levee (miles): | 1 | | |
| **Total Number of Dams:** | **49** | | |
| DWR Dams: | 46 | | |
| NFHL Dams and Weirs: | 11 | DWR/USGS Reservoirs: | 5 |
| Local Agency Dams: | 3 | Local Agency Debris Basins: | 270 |

**Figure E-D.2-9** DRAFT

Summary of Available Flood Infrastructure Information, South Lahontan Hydrologic Region

STATEWIDE FLOOD MANAGEMENT PLANNING PROGRAM

December 21, 2012




## Colorado River Infrastructure

| | | | |
|---|---|---|---|
| **Total Miles of Levee:** | 1,715 | **Total Miles Flood Control Structures:** | 118 |
| CLD Project Levee (miles): | 0 | NFHL Flood Control Structures (miles): | 21 |
| CLD Non-Project Levee (miles): | 1,714 | Local Agency Flood Control Structures (miles): | 95 |
| NFHL Levee (miles): | 115 | | |
| Local Agency Levee (miles): | 1 | | |
| **Total Number of Dams:** | **17** | | |
| DWR Dams: | 17 | | |
| NFHL Dams and Weirs: | 0 | DWR/USGS Reservoirs: | 1 |
| Local Agency Dams: | 0 | Local Agency Debris Basins: | 10 |

**Figure E-D.2-10** DRAFT

Summary of Available Flood Infrastructure Information, Colorado River Hydrologic Region

STATEWIDE FLOOD MANAGEMENT PLANNING PROGRAM

December 21, 2012

## D.3 Infrastructure Inventory by County

Table E-D-3 presents tabulated results for each county of the process described in Appendix D.1. The numbers are not representative of all existing flood control infrastructure; rather, this is a tabulation of information gathered from the participating local agencies and the existing statewide databases, as described. Types of infrastructure counted in the table include:

- Levees –Embankments for controlling rivers, coastal areas, or other bodies of water. Any structures that could hold back water were considered, although some of these structures are not technically levees (such as railroad grades, irrigation canals).
- Flood Control Structures – Any channels, natural or built, that have been modified for flood control purposes.
- Dams – All types of existing dams used for any purpose.
- Debris Basins – Basin that are used to capture and detain debris carried by floodwaters. Debris basins are typically located at the mouth of a canyon.
- Pump Stations – Stormwater pump stations used for flood control purposes.
- Other – Any other flood control infrastructure not listed. Other types of infrastructure are defined in the table, where applicable.

**Table E-D-3 Infrastructure Inventory by County***

| County | Miles of Levee | Miles of Flood Control Structure | Number of Dams | Number of Debris Basins | Number of Pump Stations | Other (Quantity) | Other (Infrastructure Type) |
|---|---|---|---|---|---|---|---|
| Alameda | 536 | 467 | 35 | - | 1 | 2 | Detention Basin |
| Alpine | - | - | 40 | - | - | - | |
| Amador | - | - | 33 | - | - | - | |
| Butte | 553 | - | 36 | - | - | - | |
| Calaveras | - | - | 54 | - | 3 | - | |
| Colusa | 334 | - | 10 | - | - | 3 | |
| Contra Costa | 515 | 86 | 46 | - | - | - | |
| Del Norte | 9 | - | - | - | - | - | |
| El Dorado | - | - | 68 | - | - | - | |
| Fresno | 829 | 13 | 80 | - | - | - | |
| Glenn | 275 | 2 | 9 | - | 2 | 1 | Groundwater Recharge Basin |
| Humboldt | 90 | - | 6 | - | - | - | |

*The tabulated results contained in this table are the results of the process described in Appendix D.1. The numbers are not representative of all existing flood control infrastructure.

**Table E-D-3 Infrastructure Inventory by County***

| County | Miles of Levee | Miles of Flood Control Structure | Number of Dams | Number of Debris Basins | Number of Pump Stations | Other (Quantity) | Other (Infrastructure Type) |
|---|---|---|---|---|---|---|---|
| Imperial | 825 | 2 | 6 | - | - | - | |
| Inyo | 60 | - | 18 | - | - | - | |
| Kern | 1,107 | - | 35 | - | - | - | |
| Kings | 1,771 | - | 8 | - | - | - | |
| Lake | 59 | - | 33 | - | 1 | - | |
| Lassen | 19 | - | 92 | - | - | - | |
| Los Angeles | 429 | 602 | 150 | 347 | 95 | - | |
| Madera | 350 | - | 32 | - | 13 | 2 | Weir |
| Marin | 177 | 11 | 26 | - | 20 | - | |
| Mariposa | - | - | 21 | - | - | - | |
| Mendocino | 4 | - | 42 | - | - | - | |
| Merced | 1,223 | - | 23 | - | 3 | 4 | Detention Basin |
| Modoc | 416 | - | 129 | - | - | - | |
| Mono | 3 | - | 25 | - | - | - | |
| Monterey | 83 | 6 | 21 | - | - | - | |
| Napa | 217 | 10 | 67 | - | - | 10 | Floodwall |
| Nevada | - | - | 69 | - | - | - | |
| Orange | 141 | 205 | 74 | 39 | 42 | - | |
| Placer | 5 | - | 78 | - | - | - | |
| Plumas | 5 | - | 29 | - | - | - | |
| Riverside | 1,051 | 1,403 | 79 | 111 | 16 | - | |
| Sacramento | 576 | 3 | 28 | - | 152 | - | |
| San Benito | 15 | - | 10 | - | - | - | |
| San Bernardino | 547 | 266 | 41 | 219 | 11 | 16 | Spreading Grounds |
| San Diego | 73 | 35 | 92 | 64 | 7 | - | |
| San Francisco | - | - | 7 | - | - | - | |
| San Joaquin | 1,817 | 100 | 21 | - | 4 | 1 | |
| San Luis Obispo | 26 | 3 | 29 | - | - | - | |
| San Mateo | 118 | 2 | 20 | - | 1 | 3 | Floodwall |
| Santa Barbara | 65 | 10 | 31 | 206 | 2 | 2 | Floodwall |
| Santa Clara | 487 | 114 | 64 | - | - | - | |
| Santa Cruz | 37 | 2 | 15 | - | - | - | |
| Shasta | 5 | 2 | 65 | - | - | - | |

*The tabulated results contained in this table are the results of the process described in Appendix D.1. The numbers are not representative of all existing flood control infrastructure.

**Table E-D-3 Infrastructure Inventory by County***

| County | Miles of Levee | Miles of Flood Control Structure | Number of Dams | Number of Debris Basins | Number of Pump Stations | Other (Quantity) | Other (Infrastructure Type) |
|---|---|---|---|---|---|---|---|
| Sierra | - | - | 11 | - | - | - | |
| Siskiyou | 768 | - | 46 | - | - | - | |
| Solano | 1,272 | 192 | 27 | 71 | 1 | - | |
| Sonoma | 309 | 23 | 66 | 2 | - | - | |
| Stanislaus | 622 | - | 9 | - | 2 | - | |
| Sutter | 456 | - | 1 | - | 3 | 2 | Weir |
| Tehama | 36 | - | 13 | - | - | 2 | Diversion Structure |
| Trinity | 7 | - | 10 | - | - | - | |
| Tulare | 712 | 94 | 23 | - | - | - | |
| Tuolumne | - | - | 65 | - | - | - | |
| Ventura | 131 | 36 | 24 | 19 | 2 | - | |
| Yolo | 676 | - | 9 | - | - | 1 | Settling Basin |
| Yuba | 213 | 1 | 13 | - | - | - | |

*The tabulated results contained in this table are the results of the process described in Appendix D.1. The numbers are not representative of all existing flood control infrastructure.

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## D.4 Detailed Infrastructure Inventory by Hydrologic Region and County

Table E-D-4 presents a list of the dams and reservoirs, including the Division of Safety of Dams (DSOD) dams, NFHL dams, and local agency dams, for each of the hydrologic regions and counties. The table is a first attempt to gather together information in an easy-glance format, but it does not yet comprehensively capture all dams and reservoirs. Rather, this is a tabulation of information gathered from a review of the existing statewide databases, as described in Appendix D.1. Types of infrastructure counted in the table include:

- Dams – All types of existing dams used for any purpose.
- Reservoirs – Constructed impoundments of water creating an artificial lake for water storage purposes.
- Weirs – Barriers constructed across a body of water to control the timing and amount of flow allowed to pass into a given area.
- Dikes –Embankments used to protect land from overflow or to regulate flow.
- Debris Basins – Basins used to capture and detain debris carried by floodwaters. Debris basins are typically located at the mouth of a canyon.
- Detention Basins – Stormwater pump stations used for flood control purposes.
- Auxiliary – Secondary infrastructure to support main function, examples would be auxiliary spillways and dams.
- Retention Basins – Basins used to capture flows, including a permanent impoundment. Retention basins are normally wet, even during times of no precipitation or flows.
- Retarding Basins – Basins used to capture flows and temporarily store them to reduce downstream flows.

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**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Black Rock Creek Dam | Dam | White Rock Lake | White Rock Club, Inc. | Monterey | North Fork Black Rock Creek | 1925 | 30 | Central Coast |
| Dam No. 1 | Dam | | Raisch Products | Monterey | Unknown | Unknown | 100 | Central Coast |
| Dam A | Dam | | National Refractories and Minerals Corp. | Monterey | Unknown | Unknown | 105 | Central Coast |
| El Piojo Dam | Dam | El Piojo Reservoir | Fort Hunter Liggett | Monterey | Unknown | 1961 | 50 | Central Coast |
| Engineer Dam | Dam | | Fort Hunter Liggett | Monterey | Unknown | 1964 | 50 | Central Coast |
| Forest Lake Dam | Dam | Forest Lake | California American Water Co. | Monterey | Offstream | 1892 | 428 | Central Coast |
| Gonzales Slough | Weir | | Unknown | Monterey | Unknown | Unknown | Unknown | Central Coast |
| Hughes Reservoir Dam | Dam | Hughes Reservoir | Fort Hunter Liggett | Monterey | Unknown | 1966 | 300 | Central Coast |
| Los Padres Dam | Dam | | California American Water Co. | Monterey | Carmel River | 1949 | 3,100 | Central Coast |
| Lower Stoney Reservoir Dam | Dam | Lower Stoney Creek Reservoir | Fort Hunter Liggett | Monterey | Unknown | 1973 | 150 | Central Coast |
| Milpitas Reservoir Dam | Dam | Milpitas Reservoir | Fort Hunter Liggett | Monterey | Unknown | 1960 | 50 | Central Coast |
| Oat Hill Reservoir | Reservoir | | Fort Hunter Liggett | Monterey | Unknown | 1962 | 50 | Central Coast |
| Pacific Grove Dam | Dam | | California American Water Co. | Monterey | Tributary Pacific Ocean | 1882 | 76 | Central Coast |
| San Antonio Reservoir | Reservoir | | Monterey County Water Resources Agency | Monterey | San Antonio River | 1965 | 350,000 | Central Coast |
| San Clemente Dam | Dam | San Clemente Reservoir | California American Water Co. | Monterey | Carmel River | 1921 | 1,425 | Central Coast |
| San Miguel Canyon Creek | Reservoir | | Unknown | Monterey | Unknown | Unknown | Unknown | Central Coast |
| Sycamore Reservoir Dam | Dam | Sycamore Reservoir | Fort Hunter Liggett | Monterey | Unknown | 1961 | 50 | Central Coast |
| Hawkins Dam | Dam | Hawkins Lake | Ausaymas Cattle Co. | San Benito | Tributary Arroyo De Las Viboras | 1928 | 575 | Central Coast |
| Hernandez Dam | Dam | Hernandez Reservoir | San Benito County Water District | San Benito | San Benito River | 1962 | 18,000 | Central Coast |
| JV De Laveaga Dam | Dam | | Las Auilas Corporation | San Benito | Tributary Quien Sabe Creek | 1940 | 514 | Central Coast |
| Paicines Dam | Dam | Paicines Reservoir | San Benito County Water District | San Benito | Tributary Tres Pinos Creek | 1912 | 4,500 | Central Coast |
| Percolation Area Dam | Dam | | Las Auilas Corporation | San Benito | Tributary Los Muertos Creek | 1951 | 430 | Central Coast |
| San Justo Dike | Dike | San Justo Reservoir | Department of Interior, Bureau of Reclamation | San Benito | San Benito River Offstream | 1987 | 11,693 | Central Coast |
| San Justo Reservoir | Reservoir | | Department of Interior, Bureau of Reclamation | San Benito | San Benito River Offstream | 1987 | 11,693 | Central Coast |
| Santa Ana Creek Tributary Retention Dam | Dam | Santa Ana Creek | Unknown | San Benito | Unknown | Unknown | Unknown | Central Coast |
| Vessey Dam | Dam | | C Schroder | San Benito | Tributary Tequisquita Slough | 1945 | 258 | Central Coast |
| Arroyo Grande Creek Dam | Dam | | Unknown | San Luis Obispo | Unknown | Unknown | Unknown | Central Coast |
| Atascadero Park Dam | Dam | Atascadero Lake | City of Atascadero | San Luis Obispo | Tributary Atascadero Creek | 1918 | 250 | Central Coast |
| Chorro Creek Dam | Dam | Chorro Reservoir | California Department of Corrections | San Luis Obispo | Chorro Creek | 1941 | 90 | Central Coast |
| Eagle Ranch Dam | Dam | Eagle Ranch | Eagle Ranch, LLC | San Luis Obispo | Hale Creek | 1974 | 300 | Central Coast |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Hartzell Dam | Dam | | W. W. Hartzell Jr. | San Luis Obispo | Santa Rita Creek | 1965 | 300 | Central Coast |
| Lopez Reservoir | Reservoir | | San Luis Obispo County Flood Control and Water Conservation District | San Luis Obispo | Arroyo Grande Creek | 1969 | 52,500 | Central Coast |
| Los Tablas Creek Dam | Dam | | Mid-State Bank & Trust | San Luis Obispo | Las Tablas Creek | 1961 | 180 | Central Coast |
| Meadow Creek | Reservoir | | Unknown | San Luis Obispo | Unknown | Unknown | Unknown | Central Coast |
| Nacimiento Reservoir | Reservoir | | Monterey County Water Resources Agency | San Luis Obispo | Nacimiento River | 1957 | 350,000 | Central Coast |
| Righetti Dam | Dam | Righetti Reservoir | Ernest R. Righetti | San Luis Obispo | West Corral De Piedra | 1966 | 680 | Central Coast |
| Salinas Dam | Dam | Santa Margarita Lake | USACE Los Angeles District | San Luis Obispo | Salinas River | 1941 | 43,200 | Central Coast |
| Salsipuedes Creek | Reservoir | | Unknown | San Luis Obispo | Unknown | Unknown | Unknown | Central Coast |
| San Marcos Dam | Dam | | Harry E. Blythe, Jr. | San Luis Obispo | San Marcos Creek | 1964 | 325 | Central Coast |
| Terminal Dam | Dam | Lopez Reservoir | San Luis Obispo County Flood Control and Water Conservation District | San Luis Obispo | Tributary Arroyo Grande | 1969 | 844 | Central Coast |
| Whale Rock Reservoir | Reservoir | | Whale Rock Commission | San Luis Obispo | Old Creek | 1960 | 40,662 | Central Coast |
| Bean Hollow No. 2 Dam | Dam | De Los Frijoles | Lake Lucerne Mutual Water Co. | San Mateo | Arroyo de Los Frijoles | 1938 | 900 | Central Coast |
| Bean Hollow No. 3 Dam | Dam | De Los Frijoles | Lake Lucerne Mutual Water Co. | San Mateo | Arroyo de Los Frijoles | 1939 | 461 | Central Coast |
| Coastways Dam | Dam | Coastways Reservoir | Coastways Ranch | San Mateo | Tributary Ano Nuevo Creek | 1951 | 100 | Central Coast |
| Green Oaks No. 1 Dam | Dam | | Ana Nuevo Ranch | San Mateo | Green Oaks Creek | 1936 | 322 | Central Coast |
| Lake Lucerne Dam | Dam | Lake Lucerne | Lake Lucerne Mutual Water Co. | San Mateo | Arroyo De Los Frijoles | 1923 | 455 | Central Coast |
| Alamo Pintado Creek | Reservoir | | Unknown | Santa Barbara | Unknown | Unknown | Unknown | Central Coast |
| Alisal Creek Dam | Dam | Alisal Creek | The Alisal Ranch | Santa Barbara | Alisal Creek | 1971 | 2,342 | Central Coast |
| Bradbury Dam | Dam | Cachuma Reservoir | Department of Interior, Bureau of Reclamation | Santa Barbara | Santa Ynez River | 1953 | 239,200 | Central Coast |
| Carpinteria Dam | Dam | Carpinteria Reservoir | Department of Interior, Bureau of Reclamation | Santa Barbara | Carpinteria Creek Offstream | 1954 | 40 | Central Coast |
| Dos Pueblos Dam | Dam | | Rudolf R. Schulte | Santa Barbara | Tributary Dos Pueblos | 1946 | 300 | Central Coast |
| Edwards Dam | Dam | Edwards Reservoir | Edwards Ranch, LLC | Santa Barbara | Tributary Gato Creek | 1985 | 596 | Central Coast |
| Gibraltar Dam | Dam | Gibraltar Reservoir | City of Santa Barbara | Santa Barbara | Santa Ynez River | 1920 | 9,998 | Central Coast |
| Glen Anne Dam | Dam | Glen Anne Reservoir | Department of Interior, Bureau of Reclamation | Santa Barbara | West Fork Glen Anne Canyon Creek | 1953 | 660 | Central Coast |
| Juncal Dam | Dam | Jameson Lake | Montecito Water District | Santa Barbara | Santa Ynez River | 1930 | 6,140 | Central Coast |
| Lake Los Carneros Reservoir | Reservoir | | City of Goleta | Santa Barbara | La Patera Depress | 1932 | 168 | Central Coast |
| Lauro Dam | Dam | Lauro Reservoir | Department of Interior, Bureau of Reclamation | Santa Barbara | Diablo Creek | 1952 | 870 | Central Coast |
| Orcutt Creek | Reservoir | | Unknown | Santa Barbara | Orcutt Creek | Unknown | Unknown | Central Coast |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Ortega Dam | Dam | Ortega Reservoir | Department of Interior, Bureau of Reclamation | Santa Barbara | Santa Ynez River Offstream | 1958 | 72 | Central Coast |
| Rancho Del Ciervo Dam | Dam | Dennis Reservoir | Meyerstein Trust | Santa Barbara | Tributary San Jose Creek | 1938 | 165 | Central Coast |
| Runoff Control Facility Reservoir | Reservoir | | Casmalia Resources | Santa Barbara | Tributary Casmalia Creek | 1899 | 137 | Central Coast |
| Santa Monica Debris Basin | Debris Basin | | Santa Barbara County Flood Control and Water Conservation District | Santa Barbara | Santa Monica Creek | 1978 | 79 | Central Coast |
| Sheffield Dam | Dam | Sheffield Reservoir | City of Santa Barbara | Santa Barbara | Sycamore Creek | 1925 | 138 | Central Coast |
| Twitchell Dam | Dam | Twitchell Reservoir | Department of Interior, Bureau of Reclamation | Santa Barbara | Cuyama River | 1958 | 398,120 | Central Coast |
| Coit Dam | Dam | | State Department of Parks and Recreation | Santa Clara | Tributary North Fork Pacheco Creek | 1956 | 275 | Central Coast |
| DeBell Dam | Dam | Sprig Lake | Michael Bonfante | Santa Clara | Tributary Bodfish Creek | 1952 | 120 | Central Coast |
| Murry Dam | Dam | | State Department of Parks and Recreation | Santa Clara | Mississippi Creek | 1957 | 715 | Central Coast |
| Nacimiento Reservoir | Reservoir | | Monterey County Water Resources Agency | Santa Clara | Nacimiento River | 1961 | 110 | Central Coast |
| North Fork Dam | Dam | Lake Clementine | Pacheco Pass Water District | Santa Clara | Pacheco Creek | 1939 | 6,150 | Central Coast |
| Peabody Dam | Dam | | Lois Long | Santa Clara | Tributary Llagas Creek | 1950 | 68 | Central Coast |
| R. Simoni Irrigation Dam | Dam | Uvas Reservoir | Della Erta Simoni | Santa Clara | Hay Canyon | 1961 | 152 | Central Coast |
| Rock Dam | Dam | Miller Slough | Unknown | Santa Clara | Unknown | Unknown | Unknown | Central Coast |
| Selvage No. 2 Dam | Dam | | Lucky Hereford Ranch | Santa Clara | Tributary Llagas Creek | 1948 | 24 | Central Coast |
| Uvas Reservoir | Reservoir | | Santa Clara Valley Water District | Santa Clara | Uvas Creek | 1957 | 10,000 | Central Coast |
| Bay Street Reservoir Dam | Dam | Bay Street Reservoir | City of Santa Cruz | Santa Cruz | Offstream | 1924 | 112 | Central Coast |
| Cowell Reservoir Dam | Dam | Cowell Reservoir | Regents of the University of California | Santa Cruz | Tributary Pacific Ocean | 1890 | 175 | Central Coast |
| Lampico Reservoir | Reservoir | | Unknown | Santa Cruz | Unknown | Unknown | Unknown | Central Coast |
| Mill Creek Dam | Dam | Mill Creek | Lockheed Missiles and Space Co., Inc. | Santa Cruz | Mill Creek | 1889 | 223 | Central Coast |
| Newell Dam | Dam | Loch Lomond | City of Santa Cruz | Santa Cruz | Newell Creek | 1960 | 8,991 | Central Coast |
| Oak Site Dam | Dam | | State Department of Forestry | Santa Cruz | Tributary Big Creek | 1969 | 20 | Central Coast |
| San Lorenzo River | Weir | | Unknown | Santa Cruz | Unknown | Unknown | Unknown | Central Coast |
| San Lorenzo River Reservoir | Reservoir | | Unknown | Santa Cruz | Unknown | Unknown | Unknown | Central Coast |
| Sempervirens Dam | Dam | Sempervirens Reservoir | California Department of Parks and Recreation | Santa Cruz | Sempervirens Creek | 1951 | 78 | Central Coast |
| Soda Lake Dam | Dam | Soda Lake | Granite Rock Co. | Santa Cruz | Tributary Pajaro River | 1978 | 1,983 | Central Coast |
| Bernard Galleano Reservoir | Reservoir | | Imperial Irrigation District | Imperial | Offstream (canal) | 1988 | 425 | Colorado River |
| Carl C. Bevins Reservoir | Reservoir | | Imperial Irrigation District | Imperial | Offstream (East Highline Canal) | 1991 | 253 | Colorado River |
| El Centro Water Purification Plant Reservoir | Reservoir | | City of El Centro | Imperial | Offstream | 1956 | 185 | Colorado River |
| H. "Red" Sperber Reservoir | Reservoir | | Imperial Irrigation District | Imperial | Offstream (Central Main Canal) | 1982 | Unknown | Colorado River |
| Imperial Diversion Dam | Dam | Imperial Reservoir | Department of Interior, Bureau of Reclamation | Imperial | Colorado River | 1938 | 160,000 | Colorado River |
| J.M. Sheldon Reservoir | Reservoir | | Imperial Irrigation District | Imperial | Offstream (East Highline and Vail Canals) | 1976 | Unknown | Colorado River |
| Louise K. Willey Reservoir | Reservoir | | Imperial Irrigation District | Imperial | Offstream (canal) | 1996 | Unknown | Colorado River |
| Milas Russell, Sr. Reservoir | Reservoir | | Imperial Irrigation District | Imperial | Offstream (canal) | 1996 | 200 | Colorado River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| North Dike | Dike | Senator Wash Reservoir | Department of Interior, Bureau of Reclamation | Imperial | Senator Wash Offstream | 1966 | 17,766 | Colorado River |
| Oscar Fudge Reservoir | Reservoir | Fudge Reservoir | Imperial Irrigation District | Imperial | Offstream (Westside Main Canal) | 1977 | Unknown | Colorado River |
| Robert F. Carter Reservoir | Reservoir | | Imperial Irrigation District | Imperial | Offstream (Rositas Canal) | 1983 | Unknown | Colorado River |
| Salton Sea Dike | Dike | | Department of Interior, Bureau of Reclamation | Imperial | Unknown | Unknown | 233,000 | Colorado River |
| Senator Wash Dam | Dam | Senator Wash Reservoir | Department of Interior, Bureau of Reclamation | Imperial | Senator Wash | 1966 | 17,766 | Colorado River |
| Squaw Lake Dike | Dike | Senator Wash Reservoir | Department of Interior, Bureau of Reclamation | Imperial | Senator Wash Offstream | 1966 | 17,766 | Colorado River |
| Young Reservoir | Reservoir | | Imperial Irrigation District | Imperial | Interceptor canal | 1996 | 275 | Colorado River |
| East Side Detention Dike No. 1 | Dike | | Department of Interior, Bureau of Reclamation | Riverside | Whitewater River Offstream | 1949 | 21,000 | Colorado River |
| East Side Detention Dike No. 2 | Dike | | Department of Interior, Bureau of Reclamation | Riverside | Whitewater River Offstream | 1949 | 18,000 | Colorado River |
| Palo Verde Diversion Dam | Dam | Palo Verde | Unknown | Riverside | Colorado River | Unknown | Unknown | Colorado River |
| Tachevah Creek Detention Dam | Dam | | Riverside County Flood Control and Water Conservation District | Riverside | Tachevah Creek | 1964 | 650 | Colorado River |
| Tahquitz Creek Debris | Debris Basin | | Riverside County Flood Control and Water Conservation District | Riverside | Tahquitz Creek | 1991 | 75 | Colorado River |
| West Side Detention Dike No. 2 | Dike | | Department of Interior, Bureau of Reclamation | Riverside | Whitewater River Offstream | 1968 | 630 | Colorado River |
| West Side Detention Dike No. 3 | Dike | | Department of Interior, Bureau of Reclamation | Riverside | Whitewater River Offstream | 1970 | 1,300 | Colorado River |
| West Side Detention Dike No. 4 | Dike | | Department of Interior, Bureau of Reclamation | Riverside | Whitewater River Offstream | 1968 | 4,900 | Colorado River |
| Wide Canyon Dam | Dam | | Riverside County Flood Control and Water Conservation District | Riverside | West Wide Canyon | 1968 | 1,490 | Colorado River |
| Copper Basin Dam | Dam | Copper Basin Reservoir | Metropolitan Water District | San Bernardino | Copper Basin | 1938 | 22,000 | Colorado River |
| Gene Wash Dam | Dam | Gene Wash Reservoir | Metropolitan Water District | San Bernardino | Gene Wash | 1937 | 6,300 | Colorado River |
| Lake Mead/Powell Reservoir | Reservoir | | Bureau of Reclamation | San Bernardino | Colorado River | 1936 | 1,500 | Colorado River |
| Parker Dam | Dam | Lake Havasu | Bureau of Reclamation | San Bernardino | Colorado River | 1938 | Unknown | Colorado River |
| Wuest Dam | Dam | | Wuest Estate Company | San Diego | Mc Cain Creek | 1928 | 280 | Colorado River |
| Arcata Dam | Dam | Jolly Grant Creek | City of Arcata | Humboldt | Jolly Giant Creek | 1937 | 46 | North Coast |
| Benbow Dam | Dam | Benbow Lake | California Department of Parks and Recreation | Humboldt | South Fork Eel River | 1932 | 1,060 | North Coast |
| Big Lagoon Dam | Dam | Big lagoon | California Redwood Acquisition Company | Humboldt | Big Lagoon | 1947 | 780 | North Coast |
| Scotia Log Pond | Reservoir | | The Pacific Lumber Co | Humboldt | Tributary Eel River | 1910 | 210 | North Coast |
| Sweasey Dam | Dam | Mad River at Blue Lake | Unknown | Humboldt | Unknown | Unknown | Unknown | North Coast |
| Scott Dam | Dam | Lake Pillsbury | Pacific Gas and Electric Company | Lake | Eel River | 1921 | 73,000 | North Coast |
| Ada Rose Lake Dam | Dam | Lake Ada Rose Reservoir | Brooktrails Community Services District | Mendocino | Tributary Willets Creek | 1964 | 138 | North Coast |
| Bevans Creek Dam | Dam | | Mr. Jon Babcock | Mendocino | Bevans Creek | 1955 | 215 | North Coast |
| Bradford Reservoir | Reservoir | | Robert L. Bradford | Mendocino | Tributary Russian River | 1985 | 440 | North Coast |
| Brooktrails No. 3 North Dam | Dam | Lake Emily | Brooktrails Community Services District | Mendocino | Willits Creek | 1970 | 275 | North Coast |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Casper Creek | Weir | | Unknown | Mendocino | Unknown | Unknown | Unknown | North Coast |
| Centennial Dam | Dam | | City of Willits | Mendocino | Davis Creek | 1990 | 635 | North Coast |
| Chinquapin Dam | Dam | | Mendocino County | Mendocino | Moore Creek | 1971 | 45 | North Coast |
| Cornett Dam | Dam | | Mrs. Mildred Cornett | Mendocino | Tributary Russian River | 1974 | 65 | North Coast |
| Coyote Valley Dam | Dam | Lake Mendocino | USACE San Francisco District | Mendocino | East Fork Russian River | 1959 | 155,500 | North Coast |
| Crawford Ranch Dam | Dam | | McDowell Valley Vineyards | Mendocino | Tributary McDowell Creek | 1972 | 340 | North Coast |
| Jayne's Lake Dam | Dam | | Eden Valley Ranch LLC | Mendocino | Stoney Creek | 1985 | 1,225 | North Coast |
| Lolonis Vineyards Reservoir | Reservoir | | Lolonis Vineyards, Inc. | Mendocino | Tributary West Fork Russian River | 1999 | 209 | North Coast |
| Mast Dam | Dam | | Stacy Holland | Mendocino | Tributary Cahto Creek | 1963 | 380 | North Coast |
| McGuire Dam | Dam | | Soper Wheeler Co. | Mendocino | South Fork Noyo River | 1967 | 190 | North Coast |
| McNab Dam | Dam | | Fetzer Vineyards | Mendocino | Mc Nab Creek | 1947 | 96 | North Coast |
| Mendocino 3 Upper Dam | Dam | | Mendocino County | Mendocino | Middle Creek | 1915 | 85 | North Coast |
| Mendocino Middle Dam | Dam | | Mendocino County | Mendocino | Middle Creek | 1908 | 27 | North Coast |
| Mill Pond Dam | Dam | Mill Pond | Georgia-Pacific Corporation | Mendocino | Tributary Pacific Ocean | 1885 | 72 | North Coast |
| Morris Dam | Dam | | City of Willits | Mendocino | James Creek | 1927 | 845 | North Coast |
| Perry Gulch Dam | Dam | | Perry Gulch Ranch | Mendocino | Tributary Perry Gulch | 1980 | 33 | North Coast |
| Ridgewood Dam | Dam | Walker Lake | The Walker Lake Association | Mendocino | Forsythe Creek | 1929 | 185 | North Coast |
| Round Mountain Dam | Dam | | Round Mountain Cooperative Community, Inc. | Mendocino | Tributary York Creek | 1964 | 282 | North Coast |
| Schwindt Dam | Dam | | David Schwindt and Riendo Arroyo | Mendocino | Tributary Burns Creek | Unknown | 23 | North Coast |
| Scout Lake Dam | Dam | Scout Lake | Boy Scouts of America, San Francisco Bay Area Council | Mendocino | Tributary Berry Creek | 1964 | 1,140 | North Coast |
| South Fork Caspar Creek | Weir | | Unknown | Mendocino | Unknown | Unknown | Unknown | North Coast |
| Van Arsdale Dam | Dam | Van Arsdale Reservoir | Pacific Gas and Electric Company | Mendocino | South Eel River | 1907 | 700 | North Coast |
| Williams Valley Reservoir | Reservoir | | Roger A. and Michelle M. Burch | Mendocino | Tributary Short Creek | 1965 | 200 | North Coast |
| A and C Reservoirs | Reservoir | Avanzino | Carey Ranches | Modoc | South Fork Willow Creek | 1923 | 800 | North Coast |
| Big Johnson Dam | Dam | | Stanley Johnson | Modoc | Tributary Lost River | 1959 | 410 | North Coast |
| Boles Meadow Reservoir | Reservoir | | Unknown | Modoc | Unknown | Unknown | Unknown | North Coast |
| Clear Lake Dike | Dike | Clear Lake Reservoir | Department of Interior, Bureau of Reclamation | Modoc | Lost River | 1910 | 597,500 | North Coast |
| Diamond Reservoir Dam | Dam | Diamond Reservoir | Unknown | Modoc | Unknown | Unknown | Unknown | North Coast |
| Dry Lake Dam | Dam | | Unknown | Modoc | Unknown | Unknown | Unknown | North Coast |
| Dry Valley Reservoir Dam | Dam | Dry Valley Reservoir | Unknown | Modoc | Unknown | Unknown | Unknown | North Coast |
| Hackamore Reservoir Dam | Dam | Hackamore Reservoir | Unknown | Modoc | Unknown | Unknown | Unknown | North Coast |
| Henski Reservoir | Reservoir | | Unknown | Modoc | Unknown | Unknown | Unknown | North Coast |
| Henski Reservoir Dam | Dam | Henski Reservoir | Unknown | Modoc | Unknown | Unknown | Unknown | North Coast |
| North Fork Willow Creek Dam | Dam | | Unknown | Modoc | Unknown | Unknown | Unknown | North Coast |
| Pease Flat | Reservoir | | Unknown | Modoc | Unknown | Unknown | Unknown | North Coast |
| Reservoir F | Reservoir | | Unknown | Modoc | Unknown | Unknown | Unknown | North Coast |
| Reservoir G | Reservoir | | Unknown | Modoc | Unknown | Unknown | Unknown | North Coast |
| Spaulding Reservoir Dam | Dam | Spaulding Reservoir | Unknown | Modoc | Unknown | Unknown | Unknown | North Coast |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Surveyors Valley Reservoir | Reservoir | | Unknown | Modoc | Unknown | Unknown | Unknown | North Coast |
| Telephone Flat Reservoir Dam | Dam | Telephone Flat Reservoir | Unknown | Modoc | Unknown | Unknown | Unknown | North Coast |
| Timbered Ridge Reservoir | Reservoir | | Unknown | Modoc | Unknown | Unknown | Unknown | North Coast |
| Whitney Reservoir | Reservoir | | Unknown | Modoc | none | Unknown | Unknown | North Coast |
| Barton Dam | Dam | Barton Lake | Madison Valley Investment Partners | Siskiyou | White Slough | 1964 | 160 | North Coast |
| Bass Lake Dam | Dam | Bass Lake | California Department of Fish and Wildlife | Siskiyou | Tributary Little Shasta River | 1949 | 223 | North Coast |
| Campbell Lake Dam | Dam | | Jennifer S. and John W. Menke | Siskiyou | Shackleford Creek | 1929 | 350 | North Coast |
| Cloak Lake Dam | Dam | Cloak Lake | Madison Valley Investment Partners | Siskiyou | Tributary Shasta River | 1955 | 123 | North Coast |
| Copco No. 1 Dam | Dam | | Pacific Power and Light Company | Siskiyou | Klamath River | 1922 | 77,000 | North Coast |
| Copco No. 2 Dam | Dam | | Pacificorp | Siskiyou | Klamath River | 1925 | 55 | North Coast |
| Dwight Hammond Dam | Dam | | Hammond Lake Irrigation Association | Siskiyou | Tributary Shasta River | 1959 | 348 | North Coast |
| Fiock No. 2 Dam | Dam | | Robert J. Cena | Siskiyou | Tributary Shasta River | 1946 | 318 | North Coast |
| George Fiock No. 1 Dam | Dam | | The Kuck Brothers | Siskiyou | Tributary Shasta River | 1954 | 223 | North Coast |
| Greenhorn Dam | Dam | Greenhorn Reservoir | City of Yreka | Siskiyou | Greenhorn Creek | 1960 | 251 | North Coast |
| Iron Gate Dam | Dam | Iron Gate Reservoir | Pacificorp | Siskiyou | Klamath River | 1962 | 58,000 | North Coast |
| Juanita, Lake Dam | Dam | | California Department of Fish and Wildlife | Siskiyou | Tributary Musgrave Creek | 1964 | 348 | North Coast |
| Lake Shastina | Reservoir | | Montague Water Conservation District | Siskiyou | Shasta River | 1928 | 50,000 | North Coast |
| Lake Suzanne Dam | Dam | | Mark and Melody Mariani | Siskiyou | Tributary Shasta River | 1962 | 89 | North Coast |
| Montague No. 2 Dam | Dam | Montague Reservoir | City of Montague | Siskiyou | Tributary Oregon Slough | 1978 | 160 | North Coast |
| Ray Soule Reservoir Dam | Dam | Ray Soule Reservoir | Skip Soule | Siskiyou | Tributary Lower Shasta River | 1953 | 132 | North Coast |
| Shelley Dam | Dam | | Dr. I. Jack Cowley | Siskiyou | Webb Gulch | 1952 | 364 | North Coast |
| Steamboat Lake Dam | Dam | Lake Steamboat | California Department of Fish and Wildlife | Siskiyou | Tributary Little Shasta River | 1968 | 2,700 | North Coast |
| Trout Lake Dam | Dam | Trout Lake | California Department of Fish and Wildlife | Siskiyou | Tributary Little Shasta River | 1960 | 2,108 | North Coast |
| Airport Reservoir Dam | Dam | | Sonoma County Water Agency | Sonoma | Offstream | 2002 | 315 | North Coast |
| Airport Storage Pond | Reservoir | | Sonoma County Water Agency | Sonoma | Tributary Windsor Creek | 1985 | 290 | North Coast |
| Airport Storage Pond 2 | Reservoir | | Sonoma County Water Agency | Sonoma | Tributary Windsor Creek | 1989 | 310 | North Coast |
| Annadel No. 1 Dam | Dam | Lake Ilsanjo | State Department of Parks and Recreation | Sonoma | Spring Creek | 1956 | 395 | North Coast |
| Asti Dam | Dam | | E & J Gallo Winery | Sonoma | Tributary Russian River | 1955 | 325 | North Coast |
| Axell Dam | Dam | | Kendall Jackson Wine Estates, Ltd. | Sonoma | Tributary Franz Creek | 1952 | 155 | North Coast |
| Azalea Dam | Dam | | Kennith D. and Barbara J. Dyche | Sonoma | North Fork Lancel Creek | 1955 | 85 | North Coast |
| Bosch No. 2 Dam | Dam | | Richard S. Toyfoya | Sonoma | Tributary Windsor Creek | 1962 | 37 | North Coast |
| Budge Dam | Dam | | Jordan Vineyard and Winery | Sonoma | Tributary Russian River | 1964 | 110 | North Coast |
| Coen C-3 Dam | Dam | | Frei Bros/Gallo Glass Company | Sonoma | Tributary Dry Creek | 1982 | 480 | North Coast |
| Cook No. 2 Dam | Dam | | E & J Gallo Winery | Sonoma | Tributary Dry Creek | 1961 | 82 | North Coast |
| Delta Pond Dam | Dam | | City of Santa Rosa | Sonoma | Tributary Russian River | 1984 | 1,950 | North Coast |
| Dennis No. 2 Reservoir | Reservoir | | E & J Gallo Winery | Sonoma | Tributary Dry Creek | 1997 | 148 | North Coast |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Dina Bob Lake Dam | Dam | | Mrs. Robert D. Ogg | Sonoma | Tributary Franz Creek | 1955 | 139 | North Coast |
| Donovan Dam | Dam | | Frederick and Donna Furth | Sonoma | Tributary Windsor Creek | 1953 | 70 | North Coast |
| Dutcher Creek Dam | Dam | | E & J Gallo Winery | Sonoma | Tributary Borrelli Creek | 1992 | 186 | North Coast |
| Foote No. 3 Dam | Dam | | Nancy F. Ogg, et al. | Sonoma | Tributary Redwood Creek | 1970 | 77 | North Coast |
| Foote No. 4 Dam | Dam | | Nancy F. Ogg, et al. | Sonoma | Tributary Kellogg Creek | 1976 | 117 | North Coast |
| Foothill Regulating Park Reservoir | Reservoir | | County of Sonoma, Regional Parks Department | Sonoma | Tributary Windsor Creek | 1963 | 109 | North Coast |
| Foss Creek North Area Dam | Dam | | City of Healdsburg | Sonoma | Foss Creek | 1998 | 85 | North Coast |
| Fountaingrove Dam | Dam | | City of Santa Rosa | Sonoma | Tributary Mark West Creek | 1953 | 427 | North Coast |
| Greeott Dam | Dam | | Frederick and Donna Furth | Sonoma | Tributary Windsor Creek | 1951 | 100 | North Coast |
| Healdsburg Rec Dam | Dam | | County of Sonoma, Regional Parks Department | Sonoma | Russian River | 1953 | 125 | North Coast |
| Helen, Lake Dam | Dam | | Robert Mattocks | Sonoma | Tributary Russian River | 1966 | 192 | North Coast |
| Hillside Ranch Dam | Dam | | Rafanelli and Nahas Real Estate Development | Sonoma | Tributary House Creek | 1967 | 210 | North Coast |
| John C. Warnecke Dam | Dam | | John Carl Warnecke | Sonoma | Tributary Russian River | 1974 | 30 | North Coast |
| Lafranchi Creek | Reservoir | | Wine World, Inc. | Sonoma | Lafranchi Creek | 1982 | 100 | North Coast |
| Lagunita Dam | Dam | | Brookfield Investors LLC | Sonoma | Tributary Windsor Creek | 1954 | 133 | North Coast |
| Lake Ralphine Dam | Dam | Lake Ralphine | City of Santa Rosa | Sonoma | Tributary Santa Rosa Creek | 1882 | 387 | North Coast |
| Lowe Dam | Dam | | Mrs. Paul Foster | Sonoma | Tributary Franz Creek | 1959 | 95 | North Coast |
| Lytton Dam | Dam | | The Salvation Army | Sonoma | Tributary Russian River | 1956 | 410 | North Coast |
| Mallacomes Dam | Dam | | Nancy F. Ogg, Et Al | Sonoma | Foote Creek | 1951 | 200 | North Coast |
| Matanzas Creek Dam | Dam | Matanzas Creek Reservoir | Sonoma County Water Agency | Sonoma | Matanzas Creek | 1963 | 1,500 | North Coast |
| Meadow Lane Dam | Dam | | City of Santa Rosa | Sonoma | Offstream | 1979 | 2,100 | North Coast |
| Merlo Reservoir | Reservoir | | Harry A Merlo | Sonoma | Fall Creek | 1982 | 930 | North Coast |
| Middle Fork Brush Creek | Reservoir | | Sonoma County Water Agency | Sonoma | Middle Fork Brush Creek | 1961 | 138 | North Coast |
| Murray Dam | Dam | | Coyote Hills Partnership | Sonoma | Tributary Franz Creek | 1970 | 117 | North Coast |
| Norton No. 2 Dam | Dam | | Ridge Vineyards | Sonoma | Tributary Dry Creek | 1956 | 102 | North Coast |
| Piner Creek Dam | Dam | | Sonoma County Water Agency | Sonoma | Paulin Creek | 1962 | 172 | North Coast |
| Pond No. 2 | Reservoir | | City of Santa Rosa | Sonoma | Offstream | 1952 | 290 | North Coast |
| Richardson Dam | Dam | Hedgpeth Lake | Soper Wheeler Company | Sonoma | Tributary Pepperwood Creek | 1954 | 520 | North Coast |
| Richardson Dam | Dam | | C. D. Richardson et al | Sonoma | Tributary Gualala River | 1974 | 96 | North Coast |
| Russian River No. 1 Dam | Dam | | Russian RV Park and Recreation District | Sonoma | Russian River | 1963 | 315 | North Coast |
| Salinger Dam | Dam | | Dr. Walter Byck | Sonoma | Tributary Mark West Creek | 1952 | 58 | North Coast |
| Santa Rosa Creek Reservoir Dam | Dam | Santa Rosa Creek Reservoir | Sonoma County Water Agency | Sonoma | Tributary Santa Rosa Creek | 1963 | 3,550 | North Coast |
| Sea Ranch | Reservoir | | The Sea Ranch Water Company | Sonoma | Offstream | 1996 | 300 | North Coast |
| Shiloh Ranch | Reservoir | | Shiloh Homeowners' Association | Sonoma | Tributary Russian River | 1991 | 300 | North Coast |
| Silver Shoon Ranch Dam | Dam | | W. Berry Hill, et al. | Sonoma | Santa Rosa Creek | 1955 | 160 | North Coast |
| Spring Lake (Santa Rosa Creek Reservoir) | Reservoir | | Natural Resources Conservation Service, Sonoma County Water Agency | Sonoma | Santa Rosa Creek Offstream | 1964 | 3,415 | North Coast |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| The Hill Ranch | Reservoir | | Thia Kellner-Hill | Sonoma | Santa Rosa Creek | 1955 | 160 | North Coast |
| Towibalyla Dam | Dam | | Kendall Jackson Wine Estates, Ltd. | Sonoma | Tributary Franz Creek | 1962 | 376 | North Coast |
| Vineyard Subdivision Dam | Dam | Vineyard Lake | The Vineyards Club, Inc. | Sonoma | Tributary Gill Creek | 1962 | 245 | North Coast |
| Warm Springs Dam | Dam | Lake Sonoma | USACE San Francisco District | Sonoma | Dry Creek | 1982 | 449,000 | North Coast |
| Clair Engle Lake | Reservoir | | Bureau of Reclamation | Trinity | Trinity River | 1961 | Unknown | North Coast |
| Ewing Dam | Dam | | Trinity County Waterworks District 1 | Trinity | Ewing Gulch | 1972 | 887 | North Coast |
| Grass Valley Creek Dam | Dam | | Unknown | Trinity | Unknown | Unknown | Unknown | North Coast |
| Jones Ranch | Reservoir | | Eleanor Jones | Trinity | Tributary Trinity River | 1980 | 58 | North Coast |
| Lewiston Dam | Dam | Lewiston Lake | Department of Interior, Bureau of Reclamation | Trinity | Trinity River | 1963 | 14,660 | North Coast |
| Robert W Matthews Dam | Dam | Ruth Lake Reservoir | Humboldt Bay Municipal Water District | Trinity | Mad River | 1962 | 51,800 | North Coast |
| Three Forks Sediment Pond | Reservoir | | Burgess, Norman R. | Trinity | Rock Creek | 1994 | 15 | North Coast |
| Trinity Dam | Dam | Trinity Reservoir | Department of Interior, Bureau of Reclamation | Trinity | Trinity River | 1962 | 2,760,870 | North Coast |
| Crater Lake Dam | Dam | Crater Lake | F. Dressler Co. and K. Neddenriep | Alpine | Crater Lake Creek | 1937 | 320 | North Lahontan |
| Harvey Place Dam | Dam | Harvey Place Reservoir | South Tahoe Public Utility District | Alpine | Indian Creek | 1989 | 3,700 | North Lahontan |
| Heenan Lake Dam | Dam | Heenan Lake Reservoir | California Department of Fish and Wildlife | Alpine | Tributary East Fork Carson River | 1929 | 3,100 | North Lahontan |
| Indian Creek Dam | Dam | Indian Creek Reservoir | South Tahoe Public Utility District | Alpine | Indian Creek | 1967 | 3,160 | North Lahontan |
| Kinney Meadows Dam | Dam | Kinney Reservoir | Alpine Land and Reservoir Co. | Alpine | Tributary Silver Creek | 1929 | 900 | North Lahontan |
| Lost Lake East Dam | Dam | Lost Lakes | Carson Water Subconservancy District | Alpine | Lost Creek | 1925 | 230 | North Lahontan |
| Lost Lake West Dam | Dam | Lost Lakes | Carson Water Subconservancy District | Alpine | Lost Creek | 1925 | 140 | North Lahontan |
| Lower Kinney Lake Dam | Dam | | Alpine Land and Res Company | Alpine | Tributary Silver Creek | 1926 | 920 | North Lahontan |
| Lower Sunset Dam | Dam | | Alpine Land and Res Company | Alpine | Pleasant Val Creek | Unknown | 860 | North Lahontan |
| Red Lake Dam | Dam | Red Lake | California Department of Fish and Wildlife | Alpine | Red Lake Creek | 1924 | 1,410 | North Lahontan |
| Scott Lake Dam | Dam | Scott Lake | F. Dressler Co. and K. Neddenriep | Alpine | Tributary West Fork Carson River | 1926 | 600 | North Lahontan |
| Tamarac Lake Dam | Dam | Tamarac Lake | Alpine Land and Res Company | Alpine | Tributary Pleasant Valley Creek | 1905 | 400 | North Lahontan |
| Upper Kenny Lake | Reservoir | | Alpine Land and Res Company | Alpine | Tributary Silver Creek | Unknown | 328 | North Lahontan |
| Upper Sunset Lake | Reservoir | | Alpine Land and Res Company | Alpine | Upper Pleasant Valley Creek | 1904 | 200 | North Lahontan |
| Wet Meadows Dam | Dam | Wet Meadows Reservoir | Alpine Land and Res Company | Alpine | Tributary Pleasant Valley Creek | Unknown | 450 | North Lahontan |
| Echo Lake Dam | Dam | | El Dorado Irrigation District | El Dorado | Tributary Upper Truckee River | 1876 | 1,900 | North Lahontan |
| Emerg Effluent Holding Dam | Dam | | South Tahoe Public Utility District | El Dorado | Tributary Heavenly Valley Creek | 1961 | 184 | North Lahontan |
| Antelope Dam | Dam | Bald Mountain Reservoir | R. C. Roberts Ranches, LLC | Lassen | Madeline Plains | 1918 | 1,500 | North Lahontan |
| Boot Creek Dam | Dam | | Unknown | Lassen | Unknown | Unknown | Unknown | North Lahontan |
| Branham Flat Dam | Dam | | Mapes Ranch, Inc. | Lassen | Branham Creek | 1880 | 1,200 | North Lahontan |
| Buckhorn Dam | Dam | Buckhorn Reservoir | Edgar S. Roberts | Lassen | Buckhorn Creek | 1904 | 2,000 | North Lahontan |
| California Corrections Center II | Reservoir | | California Department of Corrections | Lassen | Offstream | 1995 | 368 | North Lahontan |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Reservoir | | | | | | | | |
| California Corrections Center Reservoir | Reservoir | | California Department of Corrections | Lassen | Offstream | 1980 | 280 | North Lahontan |
| Caribou Lake Dam | Dam | | Roney Land and Cattle Co., Inc. | Lassen | Susan River | 1928 | 460 | North Lahontan |
| Coon Camp Dam | Dam | | Mapes Ranch, Inc. | Lassen | Tributary Horse Lake | 1900 | 548 | North Lahontan |
| Cramer Dam | Dam | | Wood Ranch, Leland Wood Jr. | Lassen | Tributary Horse Lake | 1910 | 3,000 | North Lahontan |
| Elmers Reservoir Dam | Dam | Elmers Reservoir | Unknown | Lassen | Unknown | Unknown | Unknown | North Lahontan |
| Emerson Dam | Dam | | M. Mallery and W. Mallery | Lassen | Tributary Gold Run Creek | Unknown | 418 | North Lahontan |
| Fredonia Dam | Dam | | Mapes Ranch, Inc. | Lassen | Tributary Pine Creek | 1914 | 300 | North Lahontan |
| Heath Reservoir Dam | Dam | Heath Reservoir | Frank E. and George R. Heath, Jr. | Lassen | Slate Creek | 1965 | 8,650 | North Lahontan |
| Hog Flat Dam | Dam | Hog Flat Reservoir | Lassen Irrigation Company | Lassen | Tributary Susan River | 1891 | 8,000 | North Lahontan |
| Horse Lake Dam | Dam | | Snow Storm Ranch | Lassen | Snowstorm Creek | 1912 | 75 | North Lahontan |
| Lake Leavitt Dam | Dam | Lake Leavitt | Lassen Irrigation Company | Lassen | Tributary Susan River | 1891 | 7,482 | North Lahontan |
| Madeline Dam | Dam | | Dennis A. and Rene Daugherty | Lassen | Tributary Madeline Plains | 1900 | 400 | North Lahontan |
| Mardis Barry Dam | Dam | | John Fitzgerald | Lassen | Tributary Susan River | 1941 | 113 | North Lahontan |
| McCoy Flat Dam | Dam | McCoy Flat Reservoir | Lassen Irrigation Company | Lassen | Susan River | 1891 | 17,290 | North Lahontan |
| Mendiboure Dam | Dam | Mendiboure Reservoir | Pierre Mendiboure | Lassen | Tributary Van Loan Creek | 1949 | 1,130 | North Lahontan |
| Peconom Dam | Dam | | John Fitzgerald | Lassen | Antelope Valley | 1920 | 173 | North Lahontan |
| Petes Valley Dam | Dam | | Pete's Valley Partners | Lassen | Peters Creek | 1954 | 240 | North Lahontan |
| Red Rock No. 1 Dam | Dam | Dodge Reservoir | Edgar S. Roberts | Lassen | Red Rock Creek | 1893 | 10,000 | North Lahontan |
| Round Valley Dam | Dam | Round Valley Reservoir | Jack and Thomas Swickard | Lassen | Round Valley Creek | 1892 | 5,500 | North Lahontan |
| Shugru Dam | Dam | Shugru Reservoir | Audrey Egan | Lassen | Tributary Susan River | Unknown | 195 | North Lahontan |
| Smoke Creek Dam | Dam | Smoke Creek Reservoir | Jackrabbit Properties, LLC | Lassen | Smoke Creek | 1949 | 960 | North Lahontan |
| Spaulding Dam | Dam | Spaulding Reservoir | R. C. Roberts Ranches, LLC | Lassen | Tributary Madelin Plains | 1954 | 147 | North Lahontan |
| Sworinger Dam | Dam | Sworinger Reservoir | John Estill and Lani Estill | Lassen | Tributary Silver Creek | 1961 | 4,050 | North Lahontan |
| Union Reservoir | Reservoir | | Unknown | Lassen | Unknown | Unknown | Unknown | North Lahontan |
| Ward Lake Dam | Dam | Wards Lake | R & H Leasing | Lassen | Tributary Susan River | 1889 | 350 | North Lahontan |
| Boggs and Warren Dam | Dam | | James and Lynette Harris | Modoc | East Sand Creek | 1922 | 1,058 | North Lahontan |
| Burger Dam | Dam | | Cason L. Baugh | Modoc | Tributary Upper Lake | 1968 | 161 | North Lahontan |
| Poison Springs Dam | Dam | Fee Reservoir | Fee Ranch, Inc. and P. H. Peterson | Modoc | Rock Creek | 1957 | 7,120 | North Lahontan |
| Schadler Dam | Dam | Schadler Reservoir | Schadler Ranch, Inc. | Modoc | Eight Mile Creek | 1967 | 205 | North Lahontan |
| Sworinger Dam | Dam | Sworinger Reservoir | Unknown | Modoc | Unknown | Unknown | Unknown | North Lahontan |
| Black Reservoir Dam | Dam | Junction Reservoir | Bently Family Limited Partnership | Mono | Black Creek | 1905 | 185 | North Lahontan |
| Bridgeport Dam | Dam | Bridgeport Reservoir | Walker River Irrigation District | Mono | East Walker River | 1924 | 44,100 | North Lahontan |
| Lobdell Lake Dam | Dam | Lobdell Lake | William M. Weaver, Jr., and David Park | Mono | Desert Creek | 1948 | 640 | North Lahontan |
| Lower Twin Lake Dam | Dam | Twin Lakes | Centennial Livestock | Mono | Robinson Creek | 1888 | 4,011 | North Lahontan |
| Poore Lake Reservoir Dam | Dam | Poore Lake | Park Livestock Co. | Mono | Poore Creek | 1900 | 1,200 | North Lahontan |
| Upper Twin Lake Dam | Dam | Twin Lake Reservoir | Centennial Livestock, Attn: Dave Woods | Mono | Robinson Creek | 1905 | 2,070 | North Lahontan |
| Boca Dam | Dam | Boca Reservoir | Department of Interior, Bureau of Reclamation | Nevada | Little Truckee River | 1939 | 41,110 | North Lahontan |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Donner Euer Valley Dam | Dam | | Donner Euer Valley Corp. | Nevada | Tributary South Fork Prosser Creek | 1966 | 80 | North Lahontan |
| Donner Lake Dam | Dam | | Truckee Meadows Water Authority | Nevada | Donner Creek | 1927 | 10,300 | North Lahontan |
| Martis Creek Dam | Dam | Martis Creek Lake | USACE | Nevada | Martis Creek | 1972 | 20,400 | North Lahontan |
| Prosser Creek Reservoir | Reservoir | | Department of Interior, Bureau of Reclamation | Nevada | Prosser Creek | 1962 | 41,200 | North Lahontan |
| Lake Tahoe Dam | Dam | Lake Tahoe | Department of Interior, Bureau of Reclamation | Placer | Truckee River | 1913 | 840,000 | North Lahontan |
| Prosser Creek Dam | Dam | Prosser Creek | Bureau of Reclamation | Placer | Prosser Creek | 1959-1962 | Unknown | North Lahontan |
| Quail Lake Dam | Dam | Quail Lake | Tahoe City Public Utility District | Placer | Tributary Lake Tahoe | 1926 | 70 | North Lahontan |
| Reservoir A | Reservoir | | North Star Community Services District | Placer | West Martis Creek | 1973 | 180 | North Lahontan |
| Independence Dam | Dam | Elery Lake Dam | Truckee Meadows Water Authority | Sierra | Independence Creek | 1939 | 18,500 | North Lahontan |
| Stampede Dam | Dam | Stampede Reservoir | Department of Interior, Bureau of Reclamation | Sierra | Little Truckee River | 1970 | 280,250 | North Lahontan |
| Stampede Dike | Dike | Stampede Reservoir | Department of Interior, Bureau of Reclamation | Sierra | Tributary Little Truckee River | 1970 | 280,250 | North Lahontan |
| Buckhorn Dam | Dam | Buckhorn Reservoir | Northern California Area Office | Trinity | Grass Valley Creek | 1988-1991 | Unknown | North Lahontan |
| Caples Lake Auxiliary | Auxiliary | | El Dorado Irrigation District | Alpine | Caples Creek | Unknown | 12,600 | Sacramento River |
| Caples Lake Dam | Dam | Twin Lake | Pacific Gas and Electric Company | Alpine | Tributary Silver Fork | 1922 | 21,580 | Sacramento River |
| Silver Lake Dam | Dam | Silver Lake | El Dorado Irrigation District | Amador | Silver Fork | 1876 | 3,840 | Sacramento River |
| A. L. Chaffin Dam | Dam | None | Estate of George R. Chaffin | Butte | Tributary Cottonwood Creek | 1957 | 450 | Sacramento River |
| Big Chico Creek Diversion Channel | Weir | | Unknown | Butte | Unknown | Unknown | Unknown | Sacramento River |
| California Park Reservoir | Reservoir | | California Park Association | Butte | Dead Horse Slough | 1986 | 335 | Sacramento River |
| Cannon Ranch Dam | Dam | Cannon Reservoir | Ronald J. and Lucy R. Boeger | Butte | Tributary Oregon Gulch | 1870 | 176 | Sacramento River |
| Concow Dam | Dam | Concow Reservoir | Thermalito Table Mountain Irrigation District | Butte | Concow Creek | 1925 | 6,370 | Sacramento River |
| Desalba Forebay Dam | Dam | | Pacific Gas and Electric Company | Butte | Middle Butte Creek | 1903 | 280 | Sacramento River |
| Feather River Hatchery Dam | Dam | Fish Barrier Dam | California Department of Water Resources | Butte | Feather River | 1964 | 580 | Sacramento River |
| Forbestown Diversion Dam | Dam | | South Feather Water and Power Agency | Butte | South Fork Feather River | 1962 | 358 | Sacramento River |
| Grizzly Creek Dam | Dam | | Mr. and Mrs. Ronald T. Dreisbach | Butte | Grizzly Creek | 1964 | 76 | Sacramento River |
| Kunkle Dam | Dam | Kunkle Reservoir | Pacific Gas and Electric Company | Butte | Tributary West Branch Feather River | 1907 | 253 | Sacramento River |
| Lake Madrone Dam | Dam | Madrone Lake | Lake Madrone Water District | Butte | Berry Creek | 1931 | 200 | Sacramento River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Lake Wyandotte Dam | Dam | Lake Wyandotte | South Feather Water and Power Agency | Butte | North Honcut Creek | 1924 | 313 | Sacramento River |
| Lindo Channel Diversion Weir | Weir | | Unknown | Butte | Unknown | Unknown | Unknown | Sacramento River |
| Little Chico - Butte Creek Diversion Structure Dam | Dam | | Unknown | Butte | Unknown | Unknown | Unknown | Sacramento River |
| Little Chico Creek Diversion Structure Dam | Dam | | Unknown | Butte | Unknown | Unknown | Unknown | Sacramento River |
| Littlefield Dam | Dam | Littlefield Reservoir | Unknown | Butte | Unknown | Unknown | Unknown | Sacramento River |
| Lost Creek | Reservoir | | South Feather Water and Power Agency | Butte | Lost Creek | 1924 | 5,680 | Sacramento River |
| Magalia Dam | Dam | | Paradise Irrigation District | Butte | Little Butte Creek | 1918 | 2,900 | Sacramento River |
| Miners Ranch Dam | Dam | Miners Ranch Reservoir | South Feather Water and Power Agency | Butte | Tributary North Honcut Creek | 1962 | 895 | Sacramento River |
| Morgan Reservoir Dam | Reservoir | Morgan Reservoir | Unknown | Butte | Unknown | Unknown | Unknown | Sacramento River |
| Oroville Dam | Dam | Lake Oroville | California Department of Water Resources | Butte | Feather River | 1968 | 3,537,577 | Sacramento River |
| Paradise Dam | Dam | Paradise Lake | Paradise Irrigation District | Butte | Little Butte Creek | 1957 | 11,500 | Sacramento River |
| Philbrook Dam | Dam | Philbrook No. 1 | Pacific Gas and Electric Company | Butte | Philbrook Creek | 1926 | 5,180 | Sacramento River |
| Philbrook Saddle Dam | Dam | Philbrook No. 2 | Pacific Gas and Electric Company | Butte | Philbrook Creek | 1926 | 5,000 | Sacramento River |
| Poe Dam | Dam | | Pacific Gas and Electric Company | Butte | North Fork Feather River | 1959 | 1,150 | Sacramento River |
| Ponderosa Diversion Dam | Dam | Ponderosa Reservoir | South Feather Water and Power Agency | Butte | South Fork Feather River | 1962 | 4,750 | Sacramento River |
| Round Valley Dam | Dam | Round Valley Reservoir | Pacific Gas and Electric Company | Butte | West Branch Feather River | 1877 | 1,147 | Sacramento River |
| Sly Creek Dam | Dam | Sly Creek Reservoir | South Feather Water and Power Agency | Butte | Lost Creek | 1961 | 65,050 | Sacramento River |
| Thermalito Afterbay | Reservoir | | California Department of Water Resources | Butte | Tributary Feather River | 1967 | 57,041 | Sacramento River |
| Thermalito Diversion Dam | Dam | | California Department of Water Resources | Butte | Feather River | 1967 | 13,328 | Sacramento River |
| Thermalito Forebay | Reservoir | | California Department of Water Resources | Butte | Tributary Cottonwood Creek | 1967 | 11,768 | Sacramento River |
| Wilson Reservoir | Reservoir | | Unknown | Butte | Stream from Lake Oroville | Unknown | Unknown | Sacramento River |
| Coleman Dike | Dike | East Park Reservoir | Department of Interior, Bureau of Reclamation | Colusa | Little Stony Creek Offstream | 1910 | 54,438 | Sacramento River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| East Park Dam | Dam | East Park Reservoir | Department of Interior, Bureau of Reclamation | Colusa | Little Stony Creek | 1910 | 54,438 | Sacramento River |
| East Park Dike 1 | Dike | East Park Reservoir | Department of Interior, Bureau of Reclamation | Colusa | Little Stony Creek | 1910 | 54,438 | Sacramento River |
| East Park Dike 2 | Dike | East Park Reservoir | Department of Interior, Bureau of Reclamation | Colusa | Little Stony Creek | 1910 | 54,438 | Sacramento River |
| East Park Dike 3 | Dike | East Park Reservoir | Department of Interior, Bureau of Reclamation | Colusa | Little Stony Creek | 1910 | 54,438 | Sacramento River |
| Funks Dam | Dam | Funks Reservoir | Department of Interior, Bureau of Reclamation | Colusa | Funks Creek | 1976 | 2,312 | Sacramento River |
| Gordon Dike | Dike | East Park Reservoir | Department of Interior, Bureau of Reclamation | Colusa | Little Stony Creek Offstream | 1910 | 54,438 | Sacramento River |
| Rainbow Diversion Dam | Dam | | Department of Interior, Bureau of Reclamation | Colusa | Stoney Creek | 1914 | 100 | Sacramento River |
| Rancho Rubini Dam | Dam | | Hector and Nancy Rubini | Colusa | Tributary Bear Creek | 1955 | 106 | Sacramento River |
| York Hill 360 Dam | Dam | | Catherine Townzen and Lucille Penning | Colusa | Tributary Bear Creek | 1952 | 245 | Sacramento River |
| Abrams Dam | Dam | Black Rock Reservoir | Black Rock Ranch, LLC | El Dorado | Hastings Creek | 1950 | 110 | Sacramento River |
| Aeree Dam | Dam | None | Pilot Hill Estates Homeowner Association | El Dorado | Tributary Pilot Creek | 1951 | 90 | Sacramento River |
| Auburn Lake Trails Dam | Dam | | Auburn Lake Trails Property Owners | El Dorado | Maine Bar Canyon | 1978 | 68 | Sacramento River |
| Blakely Dam | Dam | | El Dorado Irrigation District | El Dorado | Tributary South Fork American River | 1875 | 152 | Sacramento River |
| Brush Creek Dam | Dam | | Sacramento Municipal Utility District | El Dorado | Brush Creek | 1970 | 1,530 | Sacramento River |
| Buck Island Auxiliary | Auxiliary | | Sacramento Municipal Utility District | El Dorado | Rockbound Creek | 1963 | 1,070 | Sacramento River |
| Buck Island Dam | Dam | | Sacramento Municipal Utility District | El Dorado | Little Rubicon | 1963 | 1,070 | Sacramento River |
| Camino Dam | Dam | Camino Reservoir | Sacramento Municipal Utility District | El Dorado | Silver Creek | 1961 | 275 | Sacramento River |
| Camp Creek Diversion Dam | Dam | Camp Creek | Bureau of Reclamation | El Dorado | Camp Creek | 1953 | Unknown | Sacramento River |
| Chili Bar Reservoir | Reservoir | | Pacific Gas and Electric Company | El Dorado | South Fork American River | 1964 | 3,700 | Sacramento River |
| Cross Creek Ranch Dam | Dam | | Ken Hill | El Dorado | Tributary Webber Creek | 1949 | 55 | Sacramento River |
| El Dorado Forebay Dam | Dam | | El Dorado Irrigation District | El Dorado | Long Canyon | 1923 | 472 | Sacramento River |
| Fay Gunby Dam | Dam | | El Dorado Bonsai, Inc | El Dorado | Tributary Weber Creek | 1961 | 117 | Sacramento River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Finnon Lake Dam | Dam | | Mosquito Volunteer Fire Department | El Dorado | Jay Bird Creek | 1905 | 400 | Sacramento River |
| Gastaldi Dam | Dam | | Polly Gastaldi | El Dorado | Tributary Weber Creek | 1951 | 83 | Sacramento River |
| Georgetown Control Dam | Dam | | Georgetown Divide Public Utility District | El Dorado | Canyon Creek | 1956 | 50 | Sacramento River |
| Gerle Dam | Dam | | Sacramento Municipal Utility District | El Dorado | Gerle Creek | 1962 | 1,200 | Sacramento River |
| Ice House Dam | Dam | Ice House Reservoir | Sacramento Municipal Utility District | El Dorado | South Fork Silver Creek | 1959 | 37,120 | Sacramento River |
| Ice House Dike No. 1 | Dike | | Sacramento Municipal Utility District | El Dorado | South Fork Silver Creek | Unknown | 46,000 | Sacramento River |
| Indian Creek Dam | Dam | Indian Creek Reservoir | Greenstone Country Owners Association | El Dorado | Indian Creek | 1946 | 457 | Sacramento River |
| Jacobs Creek Dam | Dam | | Four Corners Landowners Association | El Dorado | Jacobs Creek | 1948 | 587 | Sacramento River |
| Junction Dam | Dam | | Sacramento Municipal Utility District | El Dorado | Silver Creek | 1962 | 3,250 | Sacramento River |
| Loon Lake Auxiliary | Auxiliary | | Sacramento Municipal Utility District | El Dorado | Gerle Creek | 1963 | 76,500 | Sacramento River |
| Loon Lake Dam | Dam | | Sacramento Municipal Utility District | El Dorado | Gerle Creek | 1963 | 76,500 | Sacramento River |
| Loon Lake Dike | Dike | | Sacramento Municipal Utility District | El Dorado | Gerle Creek | 1963 | 76,500 | Sacramento River |
| Manhattan Creek Dam | Dam | | Virginia Johnson | El Dorado | Manhattan Creek | 1952 | 110 | Sacramento River |
| Mark Edson Dam | Dam | Stumpy Meadows Reservoir | Georgetown Divide Public Utility District | El Dorado | Pilot Creek | 1962 | 20,000 | Sacramento River |
| Medley Lakes Auxiliary No. 4 | Auxiliary | | El Dorado Irrigation District | El Dorado | South Fork American River | Unknown | 5,280 | Sacramento River |
| Medley Lakes Dam | Dam | Lake Aloha | Pacific Gas and Electric Company | El Dorado | Tributary South Fork American River | 1923 | 5,350 | Sacramento River |
| New York Creek | Weir | | Unknown | El Dorado | Unknown | Unknown | Unknown | Sacramento River |
| Niegel Dam | Dam | | Rod Hinkle, et al. | El Dorado | Hastings Creek | 1951 | 145 | Sacramento River |
| North Fork American River Diversion Dam | Dam | | Unknown | El Dorado | Unknown | Unknown | Unknown | Sacramento River |
| Robbs Peak Dam | Dam | | Sacramento Municipal Utility District | El Dorado | South Fork Rubicon River | 1963 | 30 | Sacramento River |
| Rock Creek Dam | Dam | Chiquita Lake | Larry B. Ford | El Dorado | Rock Creek | 1932 | 34 | Sacramento River |
| Rubicon Auxiliary | Auxiliary | | Sacramento Municipal Utility District | El Dorado | Feather River | 1963 | 1,450 | Sacramento River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Rubicon Reservoir Dam | Dam | Rubicon Reservoir | Sacramento Municipal Utility District | El Dorado | Rubicon River | 1963 | 1,450 | Sacramento River |
| Schmidell Lake Dam | Dam | Lake Schmidell | U. S. Fish and Wildlife Service | El Dorado | Tributary Rubicon River | 1955 | 184 | Sacramento River |
| Schubin Dam | Dam | | Nick J. Schubin | El Dorado | Tributary Weber Creek | 1952 | 225 | Sacramento River |
| Shaffer Reservoir | Reservoir | | Echo Lane Investors, LLC | El Dorado | Indian Creek | 1968 | 111 | Sacramento River |
| Slab Creek Dam | Dam | Slab Creek Reservoir | Sacramento Municipal Utility District | El Dorado | South Fork American River | 1967 | 16,600 | Sacramento River |
| Straza Dam | Dam | | Black Rock Ranch, LLC | El Dorado | Black Rock Creek | 1971 | 185 | Sacramento River |
| Union Valley Reservoir Dam | Dam | Union Valley Reservoir | Sacramento Municipal Utility District | El Dorado | Silver Creek | 1963 | 230,000 | Sacramento River |
| Volo Mining Company Dam | Dam | | Robert Purser | El Dorado | Indian Creek | 1958 | 148 | Sacramento River |
| Weber Reservoir | Reservoir | | El Dorado Irrigation District | El Dorado | North Fork Weber Creek | 1924 | 1,100 | Sacramento River |
| Williamson No. 1 Reservoir | Reservoir | | M. Mak, M. Chan and M. Lau | El Dorado | Tributary Weber Creek | 1926 | 150 | Sacramento River |
| E A Wright Dam | Dam | | Mr. Fritz Mast | Glenn | Small Creek | 1950 | 400 | Sacramento River |
| Hamilton Dam | Dam | | Leon Whitney | Glenn | Tributary Watson Creek | 1967 | 111 | Sacramento River |
| Sanhedrin Ranch | Reservoir | | George Kokkinakis | Glenn | Stony Creek | 1967 | 120 | Sacramento River |
| Stony Creek Gravel Dam | Dam | | Glenn-Colusa Irrigation District | Glenn | Stony Creek | 1906 | 100 | Sacramento River |
| Stony Gorge Dam | Dam | Stony Gorge Reservoir | Department of Interior, Bureau of Reclamation | Glenn | Stony Creek | 1928 | 58,500 | Sacramento River |
| Willow Creek | Reservoir | | Unknown | Glenn | None | Unknown | Unknown | Sacramento River |
| Adobe Creek | Reservoir | | Lake County Flood Control and Water Conservation District | Lake | Adobe Creek | 1962 | 695 | Sacramento River |
| Allen Dam | Dam | | Evelyn Allen | Lake | Tributary Kelsey Creek | 1955 | 85 | Sacramento River |
| Bar X Ranch Reservoir No. 2 | Reservoir | | Bar-X Ranch | Lake | Crazy Creek | 2003 | 147 | Sacramento River |
| Bottoms Reservoir | Reservoir | | Middletown Enterprises | Lake | Tributary Helena Creek | 1990 | 315 | Sacramento River |
| Cache Creek Dam | Dam | Clear Lake | Magoon Estate, Ltd | Lake | Cache Creek | 1914 | 315,000 | Sacramento River |
| Clear Lake | Reservoir | | Yolo County Flood Control and Water Conservation District | Lake | Cache Creek | 1914 | 378,000 | Sacramento River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Coyote Creek Dam | Dam | Hidden Valley Lake | Yolo County Flood Control and Water Conservation District | Lake | Coyote Creek | 1968 | 3,375 | Sacramento River |
| Coyote Creek Weir | Weir | | Hidden Valley Lake Association | Lake | Unknown | Unknown | Unknown | Sacramento River |
| Detert Lake Dam | Dam | Detert Reservoir | Unknown | Lake | Unknown | Unknown | Unknown | Sacramento River |
| Geunoc Lake | Reservoir | | Unknown | Lake | Bucksnort Creek | 1928 | 3,237 | Sacramento River |
| Graham Dam | Dam | | Magoon Estate, Ltd | Lake | Tributary Highland Creek | 1959 | 62 | Sacramento River |
| Highland Creek Dam | Dam | Highland Springs Reservoir | Sue Thomason | Lake | Highland Creek | 1962 | 3,500 | Sacramento River |
| Homestake Tailings Dam | Dam | | Lake County Flood Control and Water Conservation District | Lake | Tributary Hunting Creek | 1990 | Unknown | Sacramento River |
| Indian Valley Dam | Dam | Indian Valley Reservoir | Homestake Mining Company | Lake | North Fork Cache Creek | 1976 | 300,000 | Sacramento River |
| Lake Bordeaux | Reservoir | | Yolo County Flood Control and Water Conservation District | Lake | Tributary Bucksnort Creek | 1962 | 538 | Sacramento River |
| Lake Burgundy Dam | Dam | | Magoon Estate Ltd. | Lake | Tributary Bucksnort Creek | 1962 | 200 | Sacramento River |
| Lake County Sanitation District 2 Dam | Dam | | Lake County Sanitation District | Lake | Tributary Lyons Creek | 1976 | 870 | Sacramento River |
| Lake County Sanitation District Dam | Dam | | Lake County Sanitation District | Lake | Tributary Burns Val Creek | 1972 | 530 | Sacramento River |
| Lakeport Dam | Dam | | City of Lakeport Sewer District 1 | Lake | Tributary Manning Creek | 1980 | 650 | Sacramento River |
| Langtry Dam | Dam | | Magoon Estate, Ltd. | Lake | Tributary Cassidy Creek | 1992 | 525 | Sacramento River |
| McCreary Dam | Dam | McCreary Lake | Magoon Estate, Ltd. | Lake | Bucksnort Creek | 1961 | 2,098 | Sacramento River |
| Peters Dam | Dam | | Victor S. and Mark H. Trione | Lake | Benmore Creek | 1940 | 112 | Sacramento River |
| Spring Valley Dam | Dam | Spring Valley Reservoir | County of Lake | Lake | Wolf Creek | 1968 | 325 | Sacramento River |
| Tailings Impoundment Reservoir | Reservoir | | Homestake Mining Co. | Lake | Unknown | Unknown | 60,350 | Sacramento River |
| Albaugh No. 1 Dam | Dam | | J. E. Albaugh | Lassen | Tributary Pit River | 1953 | 335 | Sacramento River |
| Albaugh No. 2 Dam | Dam | | J. E. Albaugh | Lassen | Tributary Willow Creek | 1966 | 270 | Sacramento River |
| Beaver Creek Reservoir | Reservoir | | Beaver Creek Ranch | Lassen | Tributary Beaver Creek | 1978 | 214 | Sacramento River |
| Bull Run Slough Dam | Dam | | Unknown | Lassen | Unknown | Unknown | Unknown | Sacramento River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Chace Valley Dam | Dam | | Melvin D Myers | Lassen | Tributary Butte Creek | 1955 | 92 | Sacramento River |
| Collett Addition Dam | Dam | | Malacha Hydro Limited Partnership | Lassen | Tributary Pit River | 1991 | 7,800 | Sacramento River |
| Collett Afterbay Dam | Dam | | Malacha Hydro Limited Partnership | Lassen | Tributary Sacramento River | 1991 | 300 | Sacramento River |
| Coyote Flat Dam | Dam | | John B. Crook | Lassen | Coyote Creek | 1928 | 5,250 | Sacramento River |
| Elkins and Lane Dam | Dam | Lane Reservoir | William T. and Kathleen Deforest | Lassen | Tributary Ash Creek | 1953 | 412 | Sacramento River |
| Gerig Dam | Dam | | Gerig Dam Association | Lassen | Pit River | 1939 | 110 | Sacramento River |
| Holbrook Reservoir | Reservoir | | Betty Carrol and Craig Rulison | Lassen | Ash Creek | 1952 | 719 | Sacramento River |
| Indian Creek Dam | Dam | | Unknown | Lassen | Unknown | Unknown | Unknown | Sacramento River |
| Indian Ole Dam | Dam | Mountain Meadows Reservoir | Pacific Gas and Electric Company | Lassen | Hamilton Creek | 1924 | 24,800 | Sacramento River |
| Iverson Dam | Dam | | McArthur 1989 Trust | Lassen | Tributary Juniper Creek | 1968 | 1,800 | Sacramento River |
| Leonard No. 2 Dam | Dam | | Drs. Eugene and Ann Breznock | Lassen | Tributary Ash Creek | 1968 | 187 | Sacramento River |
| Mill Pond Dam | Dam | Mill Pond Embankment | Unknown | Lassen | Unknown | Unknown | Unknown | Sacramento River |
| Muck Valley Afterbay | Reservoir | | Malacha Hydro Limited Partnership | Lassen | Pit River Offstream | 1990 | 420 | Sacramento River |
| Muck Valley Diversion Reservoir | Reservoir | | Malacha Hydro Limited Partnership | Lassen | Pit River | 1988 | 24 | Sacramento River |
| Myers Dam | Dam | Myers Reservoir | Daran V. Myers | Lassen | Tributary Ash Creek | 1957 | 279 | Sacramento River |
| Nine Springs Dam | Dam | Nine Springs Reservoir | Dan Tankersley | Lassen | Tributary Bull Run Slough | 1954 | 125 | Sacramento River |
| Rains Creek | Reservoir | | Richard W. Callison | Lassen | Fraser Creek | 1960 | 126 | Sacramento River |
| Silva Flat Dam | Dam | Silva Flat Reservoir | Rick and Tracy Boggs | Lassen | Juniper Creek | 1926 | 3,900 | Sacramento River |
| Spooner Dam | Dam | Spooner Reservoir | Gary Johns | Lassen | Tributary Ash Creek | 1906 | 3,123 | Sacramento River |
| Tule Lake | Reservoir | | John Hancock Mutual Ins Co | Lassen | Cedar Creek | 1904 | 39,500 | Sacramento River |
| Bayley Reservoir Dam | Dam | Bayley Reservoir | Alturas Ranches, LLC | Modoc | Crooks Canyon | 1954 | 2,390 | Sacramento River |
| Big Dobe North Dam | Dam | | Ronald Schluter | Modoc | Tributary Rattlesnake Creek | 1912 | 6,530 | Sacramento River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Big Dobe South Dam | Dam | | Ronald Schluter | Modoc | Tributary Rattlesnake Creek | 1912 | 3,860 | Sacramento River |
| Big Juniper Creek Dam | Dam | | Unknown | Modoc | Unknown | Unknown | Unknown | Sacramento River |
| Big Sage Dam | Dam | Big Sage Reservoir | Hot Springs Valley Irrigation District | Modoc | Rattlesnake Creek | 1921 | 77,000 | Sacramento River |
| Bucher Swamp Dam | Dam | | Unknown | Modoc | Unknown | Unknown | Unknown | Sacramento River |
| C Reservoir | Reservoir | | Unknown | Modoc | Unknown | Unknown | Unknown | Sacramento River |
| Carpenter Wilson Dam | Dam | Wilson Reservoir | Leon and Grace Urrutia | Modoc | Cooley Gulch | 1948 | 93 | Sacramento River |
| Clarke Dam | Dam | | Juanita C Gardner | Modoc | Tributary North Fork Pit River | 1939 | 70 | Sacramento River |
| Cloverswale Dam | Dam | | S-X Ranch, Incorporated | Modoc | Tributary Witcher Creek | 1973 | 4,620 | Sacramento River |
| Cummings Reservoir No. 1 Dam | Dam | Lower Cummings Reservoir | Milano Land and Cattle Company, LLC | Modoc | West Fork Rock Creek | 1912 | 400 | Sacramento River |
| Curtis-Capik Dam | Dam | | Loren Crabtree | Modoc | Tributary North Fork Pit River | 1965 | 1,367 | Sacramento River |
| Danhauser Dam | Dam | | John W. Capik | Modoc | Tributary South Fork Pit River | 1890 | 1,258 | Sacramento River |
| Davis Creek Orchard Dam | Dam | | Wilson Ranches | Modoc | Roberts Creek | 1975 | 1,841 | Sacramento River |
| Davis Creek Orchard Dam | Dam | Davis Creek Orchard Reservoir | Warren Hopkins | Modoc | Unknown | Unknown | Unknown | Sacramento River |
| Dobe Swale Reservoir Dam | Dam | Dobe Swale Reservoir | Unknown | Modoc | Unknown | Unknown | Unknown | Sacramento River |
| Donovan Dam | Dam | | Unknown | Modoc | Rye Grass Swale | 1953 | 1,234 | Sacramento River |
| Dorris Day Reservoir | Reservoir | Dorris Reservoir | California Pines Property Owners Association | Modoc | Stockdill Slough | Unknown | 20,690 | Sacramento River |
| Duncan Dam | Dam | Duncan Reservoir | Department of Interior, Fish and Wildlife Service | Modoc | Tributary Pit River | 1919 | 2575 | Sacramento River |
| Emigrant Spring Reservoir | Reservoir | | Peggy S Brown | Modoc | Emigrant Creek | 1924 | Unknown | Sacramento River |
| Enquist Dam | Dam | | Spencer Murfey | Modoc | Tributary Olivers Canyon | 1919 | 185 | Sacramento River |
| Graven Dam | Dam | | Frederick R. and Mildred Anklin | Modoc | Tributary Canyon Creek | 1917 | 1,100 | Sacramento River |
| Halls Meadows Reservoir | Reservoir | | Joe and Karen Russ | Modoc | Couch Creek | 1941 | 581 | Sacramento River |
| Hines Brothers Dam | Dam | Hines Reservoir | Craig Knight | Modoc | Tributary Pit River | 1955 | 200 | Sacramento River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Householder Dam | Dam | Householder Reservoir | Unknown | Modoc | Unknown | Unknown | Unknown | Sacramento River |
| Householder Reservoir Dam | Dam | Householder Reservoir | Unknown | Modoc | Unknown | Unknown | Unknown | Sacramento River |
| Huffman Antelope Dam | Dam | | S-X Ranch, Incorporated | Modoc | Clover Swale | 1922 | 1550 | Sacramento River |
| Indian Spring Reservoir | Reservoir | | Unknown | Modoc | Unknown | Unknown | Unknown | Sacramento River |
| Ingals Swamp Dam | Dam | Dossir Brothers Reservoir | S-X Ranch, Incorporated | Modoc | Ingals Swamp | 1918 | 2,850 | Sacramento River |
| Jack's Swamp Dam No. 2 | Dam | | Glen Nader | Modoc | Tributary Pit River | 1926 | 1,013 | Sacramento River |
| James Porter Dam | Dam | Porter Reservoir | Terry and Carole York | Modoc | Tributary Parker Creek | 1928 | 106 | Sacramento River |
| Jim Creek Dam | Dam | | Unknown | Modoc | Unknown | Unknown | Unknown | Sacramento River |
| Junkers Reservoir | Reservoir | | Geraldine (Pokey) Silva | Modoc | Tributary Pit River | 1923 | 71 | Sacramento River |
| Kelley and Griener Dam | Dam | Kelley Reservoir | Unknown | Modoc | Unknown | Unknown | Unknown | Sacramento River |
| Kramer Dam | Dam | Kramer Reservoir | Kramer Ranch, LLC | Modoc | Widow Valley Creek | 1937 | 118 | Sacramento River |
| Lauer Dam | Dam | Lauer Reservoir | Department of Interior, Bureau of Indian Affairs | Modoc | Tributary North Fork Pit River | 1900 | 600 | Sacramento River |
| Leonard Johnson Dam | Dam | | C William Johnson | Modoc | Dry Creek | 1948 | 120 | Sacramento River |
| Lindauer concrete Dam | Dam | | Carey Ranches | Modoc | Pit River | 1920 | 101 | Sacramento River |
| Little Juniper Dam | Dam | Little Juniper Reservoir | Alturas Ranches, LLC | Modoc | Lower Juniper Creek | 1926 | 1,370 | Sacramento River |
| Lookout Dam | Dam | | Lookout Dam Company | Modoc | Pit River | 1930 | 430 | Sacramento River |
| Lost Reservoir | Reservoir | | Unknown | Modoc | Unknown | Unknown | Unknown | Sacramento River |
| Lower Roberts Reservoir | Reservoir | | Big Valley Mutual Water Company | Modoc | Tributary Pit River | 1905 | 5,500 | Sacramento River |
| McBrien Dam | Dam | McBrien Reservoir | Hagge Ranch, Inc. | Modoc | Pit River | 1880 | 1,000 | Sacramento River |
| McGinty Dam | Dam | McGinty Reservoir | Department of Interior, Bureau of Indian Affairs | Modoc | Mud Creek | 1970 | 1,090 | Sacramento River |
| McGinty Saddle Dike | Dike | McGinty Reservoir | Department of Interior, Bureau of Indian Affairs | Modoc | Mud Creek | 1970 | 1,090 | Sacramento River |
| Mud Lake | Reservoir | | Ronald Schluter | Modoc | Tributary North Fork Pit River | 1926 | 300 | Sacramento River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| North Fork Pit River | Weir | | Unknown | Modoc | Unknown | Unknown | Unknown | Sacramento River |
| Payne Dam | Dam | Payne Reservoir | Ray Or Judy Breiner | Modoc | Tributary South Fork Pit River | 1928 | 2,850 | Sacramento River |
| Pickering Lumber Dam | Dam | | Ronald H. Westfall and John P. Ochipinti | Modoc | Tributary Pit River | 1932 | 500 | Sacramento River |
| Pine Creek Reservoir | Reservoir | | U. S. Fish and Wildlife Service | Modoc | Tributary to Pit River | Unknown | Unknown | Sacramento River |
| Plum Canyon Dam | Dam | Porter Reservoir | Warren Weber, et al. | Modoc | Plum Creek | 1913 | 184 | Sacramento River |
| Poindexter Reservoir | Reservoir | | Unknown | Modoc | Unknown | Unknown | Unknown | Sacramento River |
| Pretty Tree Reservoir | Reservoir | | Unknown | Modoc | Unknown | Unknown | Unknown | Sacramento River |
| Renner Sibley Creek Dam | Dam | | USA Investments Associates | Modoc | Sibley Creek | 1959 | 765 | Sacramento River |
| Rimrock Valley Reservoir | Reservoir | | Unknown | Modoc | Unknown | Unknown | Unknown | Sacramento River |
| Rock Creek Reservoir | Reservoir | | Pacific Gas and Electric Company | Modoc | Unknown | Unknown | Unknown | Sacramento River |
| Rye Grass Swale Dam | Dam | Graves Reservoir | Rollie L. Gilliam | Modoc | Tributary Canyon Creek | 1923 | 530 | Sacramento River |
| S X 112 Dam | Dam | Essex Reservoir | S-X Ranch, Incorporated | Modoc | Tributary Pit River | 1917 | 4,225 | Sacramento River |
| Shedd Dam | Dam | | Joe and Karen Russ | Modoc | Tributary North Fork Pit River | 1962 | 100 | Sacramento River |
| Taylor Creek No. 1 Dam | Dam | Taylor Reservoir | Greg Fowler | Modoc | Taylor Creek | 1952 | 1,500 | Sacramento River |
| Thomas Briles Dam | Dam | Briles Reservoir | Warren Hopkins | Modoc | Tributary Goose Lake | 1910 | 209 | Sacramento River |
| Toreson Dam | Dam | Ballard Reservoir | Mr. and Mrs. Robert G Baird | Modoc | Toms Creek | 1898 | 1,140 | Sacramento River |
| Upper Cummings Reservoir | Reservoir | | Unknown | Modoc | Unknown | Unknown | Unknown | Sacramento River |
| Upper Pasture Dam | Dam | Upper Pasture | Wilson Ranches | Modoc | Yankee Jim Slough | Unknown | 250 | Sacramento River |
| West Valley Reservoir | Reservoir | | South Fork Irrigation District | Modoc | West Valley Creek | 1936 | 23,000 | Sacramento River |
| Westside Canal | Weir | | Unknown | Modoc | Unknown | Unknown | Unknown | Sacramento River |
| White Reservoir | Reservoir | | Richard Jennings | Modoc | Tributary Pit River | 1918 | 290 | Sacramento River |
| Wood Flat Reservoir | Reservoir | | Unknown | Modoc | Unknown | Unknown | Unknown | Sacramento River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Blanchard-Offner Dam | Dam | Lake Rodney | Jerome W. Komes and L. Martini | Napa | Tributary Pope Creek | 1963 | 274 | Sacramento River |
| Burns Dam | Dam | | MVP Vineyards, LLC | Napa | Tributary Swartz Creek | 1956 | 62 | Sacramento River |
| Catacoula Dam | Dam | | Vintage Ranch Properties Inc | Napa | Maxwell Creek | 1953 | 183 | Sacramento River |
| Davis Creek | Reservoir | | Unknown | Napa | Unknown | Unknown | 23,000 | Sacramento River |
| Davis Dam | Dam | | Riverside County Flood Control and Water Conservation District | Napa | Tributary Pope Creek | 1955 | 140 | Sacramento River |
| Deer Creek Dam | Dam | | Homestake Mining Company | Napa | Tributary Pope Creek | 1980 | 103 | Sacramento River |
| Dick Week Dam | Dam | | Juliana Mutual Water Company | Napa | Tributary Pope Creek | 1955 | 3,140 | Sacramento River |
| Duvall Dam | Dam | | Juliana Mutual Water Company | Napa | Tributary Pope Creek | 1940 | 242 | Sacramento River |
| Eaton H. Magoon Lake Dam | Dam | | Jerome W Komes | Napa | Routan Creek | 1965 | 2,762 | Sacramento River |
| Hardester North Dam | Dam | | Magoon Estate Limited | Napa | Tributary Burton Creek | Under Construction | 155 | Sacramento River |
| Homestake Sed M-1 Dam | Dam | | Juliana Mutual Water Company | Napa | Tributary Knoxville Creek | 1984 | 39,259 | Sacramento River |
| Lake La Verne Dam | Dam | | Homestake Mining Company | Napa | Tributary Capell Creek | 1956 | 54 | Sacramento River |
| Long Valley West No. 2 Reservoir | Reservoir | | Clinton and Nancy Pridmore | Napa | Tributary Pope Creek | 1982 | 177 | Sacramento River |
| Lower Twin Lake Dam | Dam | Twin Lakes | Juliana Mutual Water Company | Napa | Tributary Pope Creek | 1985 | 127 | Sacramento River |
| Metcalf Dam | Dam | | Juliana Mutual Water Company | Napa | Tributary Maxwell Creek | 1974 | 1,045 | Sacramento River |
| Monticello Reservoir | Reservoir | Lake Berryessa | Skalli Corporation | Napa | Putah Creek | 1957 | 1,902,086 | Sacramento River |
| Moskowite Reservoir Dam | Reservoir | Moskowite Reservoir | Department of Interior, Bureau of Reclamation | Napa | Tributary Capell Creek | 1955 | 472 | Sacramento River |
| Napa Valley Lake | Reservoir | | Harold Moskowite | Napa | Tributary Putah Creek | 1990 | 200 | Sacramento River |
| Turkey Ranch | Reservoir | | Magoon Estate Ltd | Napa | Tributary Pope Creek | 1999 | 240 | Sacramento River |
| Upper Twin Lake Dam | Dam | Twin Lakes | The Hess Collection Winery | Napa | Tributary Pope Creek | 1987 | 63 | Sacramento River |
| Usibelli No. 2 Dam | Dam | | Juliana Mutual Water Company | Napa | Tributary Maxwell Creek | 1973 | 900 | Sacramento River |
| Anderson Ranch Dam | Dam | | Usibelli Coal Mine Inc | Nevada | Tributary South Yuba River | 1989 | 30 | Sacramento River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Anthony House Dam | Dam | Lake Wildwood | Anderson and Anderson, Inc. | Nevada | Deer Creek | 1970 | 3,840 | Sacramento River |
| Bellett Dam | Dam | | Lake Wildwood Association | Nevada | Tributary Shady Creek | 1950 | 90 | Sacramento River |
| Big Downey Lake Dam | Dam | Downey Lake | Erma Bellett | Nevada | Granite Creek | 1954 | 162 | Sacramento River |
| Blue Lake Dam | Dam | | California Department of Fish and Wildlife | Nevada | Tributary Rucker Creek | 1870 | 1,123 | Sacramento River |
| Bowman Arch Dam | Dam | | Pacific Gas and Electric Company | Nevada | Canyon Creek | 1927 | 68,500 | Sacramento River |
| Bowman Lake | Reservoir | | Nevada Irrigation District | Nevada | Canyon Creek | 1927 | 64,000 | Sacramento River |
| Chicago Park Forebay Dam | Dam | | Nevada Irrigation District | Nevada | Bear River | 1966 | 103 | Sacramento River |
| Culbertson Dam | Dam | | Pacific Gas and Electric Company | Nevada | Tributary Texas Creek | 1872 | 850 | Sacramento River |
| Dam of Middle Lindsey | Dam | Lindsey Lakes | Pacific Gas and Electric Company | Nevada | Lindsey Creek | 1870 | 1,100 | Sacramento River |
| Deer Creek Diversion Dam | Dam | Lower Scotts Flat | Nevada Irrigation District | Nevada | Deer Creek | 1928 | 1,400 | Sacramento River |
| Dutch Flat 2 Forebay Dam | Dam | Dutch Flat No. 2 Forebay | Nevada Irrigation District | Nevada | Tributary Bear River | 1965 | 185 | Sacramento River |
| Dutch Flat Afterbay Dam | Dam | | Nevada Irrigation District | Nevada | Bear River | 1965 | 1,300 | Sacramento River |
| Faucherie Dam | Dam | | Nevada Irrigation District | Nevada | Canyon Creek | 1964 | 5,500 | Sacramento River |
| Faucherie Spillway Auxiliary | Auxiliary | | Nevada Irrigation District | Nevada | Canyon Creek | 1966 | 4,020 | Sacramento River |
| French Lake Dam | Dam | | Nevada Irrigation District | Nevada | Canyon Creek | 1859 | 12,500 | Sacramento River |
| Fuller Lake Dam | Dam | | Pacific Gas and Electric Company | Nevada | Jordan Creek | 1870 | 1,060 | Sacramento River |
| Hour House Dam | Dam | | Unknown | Nevada | Middle Fork Yuba River | 1968 | 285 | Sacramento River |
| Jackson Lake Dam | Dam | Jackson Lake | Nevada Irrigation District | Nevada | Jackson Creek | 1942 | 1,000 | Sacramento River |
| Lake Angela Dam | Dam | Lake Angela Reservoir | Donner Summit Public Utility District | Nevada | Tributary South Fork Yuba River | 1924 | 310 | Sacramento River |
| Lake Fordyce Dam | Dam | | Pacific Gas and Electric Company | Nevada | Fordyce Creek | 1873 | 48,900 | Sacramento River |
| Lake Spaulding Dam | Dam | Lake Spaulding | Pacific Gas and Electric Company | Nevada | South Fork Yuba River | 1913 | 74,773 | Sacramento River |
| Lake Spaulding No. 2 Dam | Dam | Spaulding Spillway | Pacific Gas and Electric Company | Nevada | South Yuba River | 1916 | 74,800 | Sacramento River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Lake Spaulding No. 3 Auxiliary | Auxiliary | Spaulding Emergency Spillway | Pacific Gas and Electric Company | Nevada | South Yuba River | 1919 | 74,800 | Sacramento River |
| Lake Sterling Dam | Dam | Lake Sterling | Pacific Gas and Electric Company | Nevada | Tributary Fordyce Creek | 1877 | 1,648 | Sacramento River |
| Lake Vera Dam | Dam | Lake Vera | Lake Vera Mutual Water Company | Nevada | Rock Creek | 1926 | 136 | Sacramento River |
| Loma Rica Airport Dam | Dam | Yuba Reservoir | Nevada Irrigation District | Nevada | Tributary Lower Green Horn Creek | 1965 | 94 | Sacramento River |
| Lower Feeley Lake Dam | Dam | Carr Lake | Pacific Gas and Electric Company | Nevada | Tributary Fall Creek | 1870 | 184 | Sacramento River |
| Lower Lindsey Dam | Dam | Lindsey Lakes | Pacific Gas and Electric Company | Nevada | Tributary Texas Creek | 1870 | 320 | Sacramento River |
| Lower Rock Lake | Reservoir | | Pacific Gas and Electric Company | Nevada | Texas Creek | 1855 | 50 | Sacramento River |
| Magnolia Dam | Dam | | Lake of The Pines Association | Nevada | Magnolia Creek | 1967 | 4,150 | Sacramento River |
| Meadow Lake Dam | Dam | Meadow Lake | Pacific Gas and Electric Company | Nevada | Tributary Fordyce Creek | 1864 | 4,930 | Sacramento River |
| Middle Lindsey Lake | Reservoir | Lindsey Lakes | Pacific Gas and Electric Company | Nevada | Tributary Texas Creek | 1870 | 103 | Sacramento River |
| Milton Diversion Dam | Dam | Milton Reservoir | Unknown | Nevada | Middle Fork Yuba River | 1928 | 270 | Sacramento River |
| Morris Reservoir | Reservoir | | Unknown | Nevada | Unknown | 1934 | Unknown | Sacramento River |
| Nevada City Raw Water Reservoir | Reservoir | | City of Nevada City | Nevada | Tributary Little Deer Creek | 1980 | 53 | Sacramento River |
| Our House | Reservoir | | Yuba County Water Agency | Nevada | Middle Yuba River | 1969 | 290 | Sacramento River |
| Penn Valley Wastewater Facility Reservoir | Reservoir | | Nevada County Department of Sanitation | Nevada | Tributary Indian Spring Creek | 1990 | 52 | Sacramento River |
| Pine Grove Dam | Dam | Pine Grove Reservoir | San Juan Ridge County Water District | Nevada | Lower Shady Creek | 1911 | 155 | Sacramento River |
| Rex Reservoir | Reservoir | | Unknown | Nevada | Unknown | Unknown | Unknown | Sacramento River |
| Rucker Lake Dam | Dam | Rucker Lake Reservoir | Pacific Gas and Electric Company | Nevada | Rucker Creek | 1871 | 620 | Sacramento River |
| Sawmill Lake Dam | Dam | Sawmill Lake | Nevada Irrigation District | Nevada | Canyon Creek | 1910 | 3,040 | Sacramento River |
| Sawmill Spillway Dam | Dam | | Nevada Irrigation District | Nevada | Canyon Creek | 1910 | 3,030 | Sacramento River |
| Scotts Flat Dam | Dam | Scotts Flat Reservoir | Nevada Irrigation District | Nevada | Deer Creek | 1948 | 49,000 | Sacramento River |
| Swan Dam | Dam | | Lakewood Association | Nevada | Dry Creek | 1967 | 550 | Sacramento River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Upper Feeley Lake Dam | Dam | Feeley Lake | Pacific Gas and Electric Company | Nevada | Tributary Fall Creek | 1870 | 739 | Sacramento River |
| Upper Lindsey Reservoir | Reservoir | Lindsey Lakes | Pacific Gas and Electric Company | Nevada | Lindsey Creek | 1870 | 180 | Sacramento River |
| Upper Rock Lake Auxiliary | Auxiliary | | Pacific Gas and Electric Company | Nevada | Texas Creek | 1855 | 207 | Sacramento River |
| Upper Rock Lake Dam | Dam | Rock Lake | Pacific Gas and Electric Company | Nevada | Tributary South Fork Yuba River | 1855 | 207 | Sacramento River |
| Van Giesan Dam | Dam | Lake Combie | Nevada Irrigation District | Nevada | Bear River | 1928 | 5,500 | Sacramento River |
| White Rock Lake | Reservoir | | Pacific Gas and Electric Company | Nevada | Tributary North Creek | 1850 | 578 | Sacramento River |
| Yuba Reservoir | Reservoir | | Unknown | Nevada | Unknown | Unknown | Unknown | Sacramento River |
| Alta Dam, Lake | Dam | | Placer County Water Agency | Placer | Tributary North Fork American River | 1862 | 270 | Sacramento River |
| Antelope Creek | Weir | Del Mar Weir | Unknown | Placer | Unknown | Unknown | Unknown | Sacramento River |
| Auburn Valley Country Club No. 3 Dam | Dam | | Golf Resources of Auburn Valley, Inc. | Placer | Tributary Bear River | 1959 | 200 | Sacramento River |
| Boole Dam | Dam | | California Province of Society of Jesus | Placer | Tributary American River | 1951 | 65 | Sacramento River |
| Christian Valley Dam | Dam | | Pacific Gas and Electric Company | Placer | South Fork Dry Creek | 1916 | 110 | Sacramento River |
| City of Lincoln No. 2 Dam | Dam | | City of Lincoln | Placer | Offstream | 1983 | 250 | Sacramento River |
| City of Lincoln No. 4 Dam | Dam | | City of Lincoln | Placer | Offstream | 1997 | 301 | Sacramento River |
| City of Lincoln Wastewater Treatment Plant Reservoir | Reservoir | | City of Lincoln | Placer | Offstream | 1977 | 365 | Sacramento River |
| Clover Valley Creek | Weir | Pond Weir | Placer County Water Agency | Placer | Unknown | Unknown | Unknown | Sacramento River |
| Clover Valley Dam | Dam | | Unknown | Placer | Tributary Antelope Creek | 1909 | 29 | Sacramento River |
| Columbian Dam | Dam | | Ethel Mulligan | Placer | Tributary Auburn Ravine | Unknown | 132 | Sacramento River |
| Combie Dam | Dam | Lake Combie | Nevada Irrigation District | Placer | Bear River | 1928 | 5,555 | Sacramento River |
| Dairy Weir | Weir | Antelope Creek | Unknown | Placer | Unknown | Unknown | Unknown | Sacramento River |
| Drum Afterbay Dam | Dam | | Pacific Gas and Electric Company | Placer | Bear River | 1968 | 341 | Sacramento River |
| Drum Forebay Dam | Dam | | Pacific Gas and Electric Company | Placer | Drum Canyon | 1913 | 564 | Sacramento River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Folsom Dike 1 | Dike | Folsom Lake | Department of Interior, Bureau of Reclamation | Placer | North Fork American River Offstream | 1956 | 1,120,000 | Sacramento River |
| Folsom Dike 2 | Dike | Folsom Lake | Department of Interior, Bureau of Reclamation | Placer | North Fork American River Offstream | 1956 | 1,120,000 | Sacramento River |
| Folsom Dike 3 | Dike | Folsom Lake | Department of Interior, Bureau of Reclamation | Placer | North Fork American River Offstream | 1956 | 1,120,000 | Sacramento River |
| Folsom Dike 4 | Dike | Folsom Lake | Department of Interior, Bureau of Reclamation | Placer | North Fork American River Offstream | 1956 | 1,120,000 | Sacramento River |
| Folsom Dike 5 | Dike | Folsom Lake | Department of Interior, Bureau of Reclamation | Placer | North Fork American River Offstream | 1956 | 1,120,000 | Sacramento River |
| Folsom Dike 6 | Dike | Folsom Lake | Department of Interior, Bureau of Reclamation | Placer | North Fork American River Offstream | 1956 | 1,120,000 | Sacramento River |
| French Meadows Reservoir | Reservoir | | Placer County Water Agency | Placer | Middle Fork American River | Unknown | Unknown | Sacramento River |
| Halsey Afterbay | Reservoir | | Pacific Gas and Electric Company | Placer | Dry Creek | 1913 | 106 | Sacramento River |
| Halsey Forebay | Reservoir | | Pacific Gas and Electric Company | Placer | Tributary Dry Creek | 1916 | 235 | Sacramento River |
| Halsey Forebay No. 2 | Reservoir | | Pacific Gas and Electric Company | Placer | Dry Creek | 1913 | 250 | Sacramento River |
| Hinkle Dam | Dam | | San Juan Suburban Water District | Placer | Tributary American River | 1980 | 200 | Sacramento River |
| Ice Lakes Dam | Dam | Serene Lakes | Sierra Lakes Co Water District | Placer | Serena Creek | 1942 | 220 | Sacramento River |
| Interbay Dam | Dam | | Placer County Water Agency | Placer | Middle Fork American River | 1966 | 178 | Sacramento River |
| Kelly Lake Dam | Dam | | Pacific Gas and Electric Company | Placer | Tributary North Fork American River | 1928 | 290 | Sacramento River |
| Kidd Lake Auxiliary | Auxiliary | | Pacific Gas and Electric Company | Placer | Tributary South Yuba River | 1850 | 1,520 | Sacramento River |
| Kidd Lake Dam | Dam | Kidd Lake | Pacific Gas and Electric Company | Placer | Tributary South Fork Yuba River | 1855 | 1,930 | Sacramento River |
| Kokila Dam | Dam | | George and Donna Wieg, et al. | Placer | Tributary Miners Ravine | 1951 | 54 | Sacramento River |
| L. L. Anderson Dam | Dam | | Placer County Water Agency | Placer | Middle Fork American River | 1965 | 111,333 | Sacramento River |
| Lake Arthur Dam | Dam | | Placer County Water Agency | Placer | South Fork Dry Creek | 1909 | 87 | Sacramento River |
| Lake Mary Dam | Dam | | Unknown | Placer | Tributary South Fork Yuba River | 1926 | 172 | Sacramento River |
| Lake Theodore Dam | Dam | Lake Theodore | Placer County Water Agency | Placer | South Fork Dry Creek | 1896 | 207 | Sacramento River |
| Lake Valley Auxiliary | Auxiliary | | Pacific Gas and Electric Company | Placer | North Fork American River | 1889 | 7,960 | Sacramento River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Lake Valley Dam | Dam | Lake Valley Reservoir | Pacific Gas and Electric Company | Placer | Tributary North Fork American River | 1911 | 8,127 | Sacramento River |
| Lakewood Dam | Dam | | Stoneworth, Inc. | Placer | Dry Creek | 1959 | 165 | Sacramento River |
| Lower Hell Hole Dam | Dam | | Placer County Water Agency | Placer | Rubicon River | 1966 | 208,400 | Sacramento River |
| Lower Peak Lake Auxiliary | Auxiliary | | Pacific Gas and Electric Company | Placer | Tributary South Yuba River | 1860 | 484 | Sacramento River |
| Lower Peak Lake Dam | Dam | Cascade Lakes | Pacific Gas and Electric Company | Placer | Tributary South Fork Yuba River | 1860 | 494 | Sacramento River |
| Mammoth Reservoir Dam | Dam | Mammoth Reservoir | Placer County Water Agency | Placer | Offstream | 1851 | 103 | Sacramento River |
| Miners Ravine Detention | Detention Basin | | Sugar Bowl Corporation | Placer | Dry Creek | 2007 | 120 | Sacramento River |
| Morning Star Reservoir | Reservoir | Big Reservoir | Placer County Flood and Water Conservation District | Placer | North Forbes Creek | 1870 | 1,190 | Sacramento River |
| New Drum Afterbay Dam | Dam | | De Anza Placer Gold Mining Company | Placer | Bear River | 1968 | 341 | Sacramento River |
| North Fork Dam | Dam | Lake Clementine | USACE | Placer | North Fork American River | 1939 | 14,700 | Sacramento River |
| Patterson Reservoir | Reservoir | | Roger C Patterson | Placer | Tributary Bear River | 1962 | 92 | Sacramento River |
| Putts Lake Dam | Dam | Putts Lake | Walter M Saunders Trust | Placer | Blue Canyon Creek | 1916 | 249 | Sacramento River |
| Ralston Afterbay | Reservoir | | Unknown | Placer | Middle Fork American River | 1966 | 2,800 | Sacramento River |
| Red Hawk Ranch Dam | Dam | | Unknown | Placer | Dry Creek | Unknown | Unknown | Sacramento River |
| Rock Creek Dam | Dam | Rock Creek Reservoir | Pacific Gas and Electric Company | Placer | Rock Creek | 1916 | 410 | Sacramento River |
| Rock Creek North Wing Auxiliary | Auxiliary | | Pacific Gas and Electric Company | Placer | Rock Creek | 1913 | 550 | Sacramento River |
| Rock Creek South Wing Auxiliary | Auxiliary | | Pacific Gas and Electric Company | Placer | Rock Creek | 1913 | 550 | Sacramento River |
| Rollins Dam | Dam | Rollins Reservoir | Thousand Trails Naco TM | Placer | Bear River | 1965 | 66,000 | Sacramento River |
| Snowflower Dam | Dam | | Spring Valley Dam Homeowners Association | Placer | Kelly Creek | 1964 | 165 | Sacramento River |
| Spring Valley Ranch Dam | Dam | | Unknown | Placer | Tributary Campbell Creek | 1958 | 60 | Sacramento River |
| Sucker Ravine Loomis Tributary | Weir | Inline Weir | Department of Interior, Bureau of Reclamation | Placer | Unknown | Unknown | Unknown | Sacramento River |
| Sugar Pine Reservoir | Reservoir | | Pacific Gas and Electric Company | Placer | North Shirttail Creek | 1981 | 10,964 | Sacramento River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Upper Peak Dam | Dam | Cascade Lakes | City of Colfax | Placer | Tributary South Fork Yuba River | 1850 | 2,112 | Sacramento River |
| Wastewater Storage Reservoir | Reservoir | | MJ Properties | Placer | Tributary Smuthers Ravine | 1978 | 212 | Sacramento River |
| Winchester Reservoir | Reservoir | | Pacific Gas and Electric Company | Placer | Tributary Orr Creek | 1999 | 58 | Sacramento River |
| Wise Forebay | Reservoir | | South Sutter Water District | Placer | Auburn Ravine | 1913 | 32 | Sacramento River |
| Antelope Reservoir | Reservoir | | California Department of Water Resources | Plumas | Indian Creek | 1964 | 22,566 | Sacramento River |
| Bidwell Lake Dam | Dam | Round Valley Reservoir | Indian Valley Community Service District | Plumas | North Canyon Creek | 1865 | 5,200 | Sacramento River |
| Bucks Diversion Dam | Dam | Lower Bucks Lake | Pacific Gas and Electric Company | Plumas | Bucks Creek | 1928 | 5,843 | Sacramento River |
| Bucks Storage Dam | Dam | Bucks Lake | Pacific Gas and Electric Company | Plumas | Bucks Creek | 1928 | 103,000 | Sacramento River |
| Butt Valley Dam | Dam | Butt Valley Reservoir | Pacific Gas and Electric Company | Plumas | Butt Creek | 1924 | 49,800 | Sacramento River |
| Caribou Afterbay Dam | Dam | Caribou Afterbay | Pacific Gas and Electric Company | Plumas | North Fork Feather River | 1959 | 2,400 | Sacramento River |
| Chester Diversion Dam | Dam | | Recl Board Sac-San Joaquin | Plumas | North Fork Feather River | 1975 | 75 | Sacramento River |
| Cresta Dam | Dam | | Pacific Gas and Electric Company | Plumas | North Fork Feather River | 1949 | 4,400 | Sacramento River |
| Doyle Reservoir | Reservoir | | Plumas National Forest | Plumas | Unknown | Unknown | Unknown | Sacramento River |
| Eureka Dam | Dam | | State Department of Parks and Recreation | Plumas | Eureka Creek | 1866 | 220 | Sacramento River |
| Frenchman Dam | Dam | | California Department of Water Resources | Plumas | Little Last Chance Creek | 1961 | 55,477 | Sacramento River |
| Greenhorn Creek Dam | Dam | | Unknown | Plumas | Unknown | Unknown | Unknown | Sacramento River |
| Grizzly Creek Dam | Dam | Grizzly Ice Pond | Jared Stein | Plumas | Big Grizzly Creek | 1915 | 140 | Sacramento River |
| Grizzly Forebay Dam | Dam | | Pacific Gas and Electric Company | Plumas | Grizzly Creek | 1928 | 1,112 | Sacramento River |
| Grizzly Valley Dam | Dam | Lake Davis | California Department of Water Resources | Plumas | Big Grizzly Creek | 1966 | 83,000 | Sacramento River |
| Lake Almanor Dam | Dam | Lake Almanor | Pacific Gas and Electric Company | Plumas | North Fork Feather River | 1927 | 1,308,000 | Sacramento River |
| Little Grass Valley Dam | Dam | Little Grass Valley Reservoir | South Feather Water and Power Agency | Plumas | South Fork Feather River | 1961 | 93,010 | Sacramento River |
| Long Lake Dam | Dam | Long Lake | Graeagle Water Company | Plumas | Gray Eagle Creek | 1938 | 1,478 | Sacramento River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Lower Three Lakes Dam | Dam | Three Lakes | Pacific Gas and Electric Company | Plumas | Milk Ranch Creek | 1928 | 606 | Sacramento River |
| Mill Creek Dam | Dam | | Unknown | Plumas | Unknown | Unknown | Unknown | Sacramento River |
| Mill Creek Diversion Dam No. 1 | Dam | | Unknown | Plumas | Unknown | Unknown | Unknown | Sacramento River |
| Mill Creek Diversion Dam No. 2 | Dam | | Unknown | Plumas | Unknown | Unknown | Unknown | Sacramento River |
| Onion Valley Reservoir | Reservoir | | Unknown | Plumas | Unknown | Unknown | Unknown | Sacramento River |
| Rock Creek Dam | Dam | Rock Creek Reservoir | Pacific Gas and Electric Company | Plumas | North Fork Feather River | 1950 | 4,660 | Sacramento River |
| Silver Lake Dam | Dam | Silver Lake | Soper-Wheeler Company | Plumas | Silver Creek | 1906 | 650 | Sacramento River |
| Slate Creek Diversion Dam | Dam | | South Feather Water and Power Agency | Plumas | Slate Creek | 1961 | 643 | Sacramento River |
| South Fork Diversion Dam | Dam | | South Feather Water and Power Agency | Plumas | South Fork Feather River | 1961 | 88 | Sacramento River |
| Spring Valley Lake Dam | Dam | Spring Valley Lake Reservoir | California Department of Fish and Wildlife | Plumas | Rock Creek | 1979 | 125 | Sacramento River |
| Taylor Lake | Reservoir | | The Nature Conservancy | Plumas | Tributary Indian Creek | 1929 | 380 | Sacramento River |
| Battery II Dam | Dam | | Sacramento Region County Sanitation District | Sacramento | Unknown | 1980 | 707 | Sacramento River |
| Battery III Dam | Dam | | Sacramento Region County Sanitation District | Sacramento | Offstream | 1983 | 240 | Sacramento River |
| Blodgett Dam | Dam | Blodgett Reservoir | Waegell Brothers, et al. | Sacramento | Laguna Creek | 1939 | 374 | Sacramento River |
| Emergency Storage Basin Dam | Dam | | Sacramento Region County Sanitation District | Sacramento | Offstream | 1977 | 835 | Sacramento River |
| Folsom Dam | Dam | Folsom Lake | Department of Interior, Bureau of Reclamation | Sacramento | American River | 1956 | 1,120,000 | Sacramento River |
| Folsom Dike 7 | Dike | Folsom Lake | Department of Interior, Bureau of Reclamation | Sacramento | Green Valley | 1956 | 1,120,000 | Sacramento River |
| Folsom Dike 8 | Dike | Folsom Lake | Department of Interior, Bureau of Reclamation | Sacramento | South Fork American River Offstream | 1956 | 1,120,000 | Sacramento River |
| Folsom Left Wing Dam | Dam | Folsom Lake | Department of Interior, Bureau of Reclamation | Sacramento | American River | 1956 | 1,120,000 | Sacramento River |
| Folsom Right Wing Dam | Dam | Folsom Lake | Department of Interior, Bureau of Reclamation | Sacramento | American River | 1956 | 1,120,000 | Sacramento River |
| Gerber Creek | Weir | Inline Weir | Unknown | Sacramento | Unknown | Unknown | Unknown | Sacramento River |
| Mormon Island Auxiliary Dam | Dam | Folsom Lake, Mormon Auxiliary, Folsom Saddle | Department of Interior, Bureau of Reclamation | Sacramento | Blue Ravine | 1956 | 1,120,000 | Sacramento River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Morrison Creek | Reservoir | | Unknown | Sacramento | Unknown | Unknown | Unknown | Sacramento River |
| Mount Stoneman Dam | Dam | | California Department of Corrections | Sacramento | Tributary American River | 1937 | 33 | Sacramento River |
| Nimbus Dam | Dam | Lake Natoma | Department of Interior, Bureau of Reclamation | Sacramento | American River | 1955 | 8,800 | Sacramento River |
| Willow Hill Reservoir | Reservoir | | City of Folsom | Sacramento | Tributary American River | Unknown | Unknown | Sacramento River |
| Lake Camanche | Reservoir | | East Bay Municipal District | San Joaquin | Mokelumne River | 1963 | Unknown | Sacramento River |
| Anderson Cottonwood Dam | Dam | Lake Redding | Anderson Cottonwood Irrigation District | Shasta | Sacramento River | 1917 | 1,240 | Sacramento River |
| Anderson Creek | Weir | | Unknown | Shasta | Unknown | Unknown | Unknown | Sacramento River |
| Boyd No. 1 Dam | Dam | | Boyd Trucking Company | Shasta | Tributary Cottonwood Creek | 1971 | 218 | Sacramento River |
| Boyd No. 2 Dam | Dam | | Boyd Trucking Company | Shasta | Tributary Cottonwood Creek | 1973 | 670 | Sacramento River |
| Brick Flat Pit Containment Dam | Dam | | Iron Mountain Mine Reclamation Trust I | Shasta | Slickrock Creek | 1994 | 220 | Sacramento River |
| Charles Smith Irrigation Dam | Dam | | United Financial Operations | Shasta | Chicken Spring Gulch | 1958 | 150 | Sacramento River |
| Coleman Forebay Dam | Dam | | Pacific Gas and Electric Company | Shasta | South Fork Battle Creek Offstream | 1911 | 76 | Sacramento River |
| George Reese Reservoir Dam | Dam | George Reese Reservoir | Arnold W. Sargent | Shasta | Tributary Tadpole Creek | 1876 | 195 | Sacramento River |
| Hat Creek No. 2 Diversion Dam | Dam | | Pacific Gas and Electric Company | Shasta | Hat Creek | 1942 | 620 | Sacramento River |
| Haynes Reservoir Dam | Dam | Lake Margaret | Denny Land & Cattle Co., LLC | Shasta | Goose Creek | 1965 | 5,870 | Sacramento River |
| Iron Canyon Dam | Dam | | Pacific Gas and Electric Company | Shasta | Iron Canyon Creek | 1965 | 24,300 | Sacramento River |
| James Montgomery Dam | Dam | | George Domb, M.D. | Shasta | Flat Creek | 1869 | 65 | Sacramento River |
| Junge No. 2 Dam | Dam | | Francis Carrington | Shasta | Tributary Clover Creek | 1965 | 42 | Sacramento River |
| Junge No. 3 Dam | Dam | | Francis Carrington | Shasta | Tributary Clover Creek | 1966 | 180 | Sacramento River |
| Keswick Dam | Dam | Keswick Reservoir | Department of Interior, Bureau of Reclamation | Shasta | Sacramento River | 1950 | 24,132 | Sacramento River |
| Lema Dam | Dam | | The McConnell Foundation | Shasta | Tributary Churn Creek | 1957 | 108 | Sacramento River |
| McCloud Dam | Dam | Lake McCloud | Pacific Gas and Electric Company | Shasta | McCloud River | 1965 | 35,300 | Sacramento River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| McCumber Dam | Dam | McCumber Reservoir | Pacific Gas and Electric Company | Shasta | North Battle Creek | 1907 | 425 | Sacramento River |
| Misselbeck Dam | Dam | Rainbow Lake | Igo-Ono Community Services District | Shasta | North Fork Cottonwood Creek | 1920 | 3,600 | Sacramento River |
| Nash Dam | Dam | | Welton L. and Judith Carrel | Shasta | Tributary Stillwater Creek | 1960 | 428 | Sacramento River |
| North Battle Creek Reservoir Dam | Reservoir | North Battle Creek Reservoir | Pacific Gas and Electric Company | Shasta | North Battle Creek | 1909 | 1,090 | Sacramento River |
| Null Dam | Dam | | The Hatch 1987 Revocable Trust | Shasta | Rock Creek | 1954 | 188 | Sacramento River |
| Pit No. 7 Afterbay | Reservoir | | Pacific Gas and Electric Company | Shasta | Pit River | 1965 | 800 | Sacramento River |
| Pit No. 7 Dam | Dam | Pit No. 7 Reservoir | Pacific Gas and Electric Company | Shasta | Pit River | 1965 | 34,000 | Sacramento River |
| Pit No. 1 Diversion | Reservoir | | Pacific Gas and Electric Company | Shasta | Fall River | 1922 | 50 | Sacramento River |
| Pit No. 1 Forebay | Reservoir | | Pacific Gas and Electric Company | Shasta | Fall River | 1947 | 2,800 | Sacramento River |
| Pit No. 3 Dam | Dam | Lake Britton | Pacific Gas and Electric Company | Shasta | Pit River | 1925 | 34,600 | Sacramento River |
| Pit No. 4 Dam | Dam | Pit No. 4 Reservoir | Pacific Gas and Electric Company | Shasta | Pit River | 1927 | 2,000 | Sacramento River |
| Pit No. 5 Conduit Embankment | Reservoir | | Pacific Gas and Electric Company | Shasta | Sugar Pine Creek | 1943 | 1,147 | Sacramento River |
| Pit No. 5 Diversion | Reservoir | | Pacific Gas and Electric Company | Shasta | Pit River | 1943 | 390 | Sacramento River |
| Pit No. 6 Dam | Dam | Pit No. 6 Reservoir | Pacific Gas and Electric Company | Shasta | Pit River | 1965 | 15,700 | Sacramento River |
| Pit River Weir | Weir | | Pacific Gas and Electric Company | Shasta | Pit River | 1921 | 2,800 | Sacramento River |
| Porcupine Reservoir | Reservoir | | Lassen National Forest | Shasta | Unknown | Unknown | Unknown | Sacramento River |
| Reclaimed Water Reservoir | Reservoir | | City of Shasta Lake | Shasta | Tributary Churn Creek | 1995 | 370 | Sacramento River |
| Ross No. 1 Dam | Dam | | Kaloko Land Corporation | Shasta | Tributary Stillwater Creek | 1957 | 709 | Sacramento River |
| Ross No. 2 Dam | Dam | | Kaloko Land Corporation | Shasta | Tributary Stillwater Creek | 1957 | 243 | Sacramento River |
| Shasta Dam | Dam | Shasta Lake | Department of Interior, Bureau of Reclamation | Shasta | Sacramento River | 1945 | 4,661,860 | Sacramento River |
| Slickrock Creek Dam | Dam | | Iron Mountain Mine Remediation Trust I | Shasta | Slickrock Creek | 2004 | 231 | Sacramento River |
| Spring Creek Debris Basin | Debris Basin | Spring Creek Reservoir | Department of Interior, Bureau of Reclamation | Shasta | Spring Creek | 1964 | 7,286 | Sacramento River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Salt Creek North Branch Dam | Dam | | Unknown | Shasta | Unknown | Unknown | Unknown | Sacramento River |
| Thurmond Dam | Dam | | Alan and Sherry Shufelberger | Shasta | Slaughter Pole Creek | 1966 | 140 | Sacramento River |
| Treatment Ponds | Reservoir | | Cortez Fisheries, Inc. | Shasta | Tributary Anderson Creek | 1975 | 450 | Sacramento River |
| Truett Dam | Dam | Woodridge Lake | Woodridge Mutual Water and Owners Corporation | Shasta | Ash Creek | 1958 | 219 | Sacramento River |
| Tunnel Reservoir | Reservoir | | Unknown | Shasta | Unknown | Unknown | Unknown | Sacramento River |
| Whiskeytown Dike 1 | Dike | Clair A. Hill Whiskeytown Lake | Department of Interior, Bureau of Reclamation | Shasta | Clear Creek Offstream | 1963 | 276,117 | Sacramento River |
| Whiskeytown Dike 2 | Dike | Clair A. Hill Whiskeytown Lake | Department of Interior, Bureau of Reclamation | Shasta | Clear Creek Offstream | 1963 | 276,117 | Sacramento River |
| Whiskeytown Reservoir | Reservoir | Clair A. Hill Whiskeytown Lake | Department of Interior, Bureau of Reclamation | Shasta | Clear Creek | 1963 | 276,117 | Sacramento River |
| Jackson Meadows Dam | Dam | Jackson Meadows Reservoir | Unknown | Sierra | Middle Fork Yuba River | 1965 | 52,500 | Sacramento River |
| Lower Sardine Lake Dam | Dam | Lower Sardine Lake | California Department of Fish and Wildlife | Sierra | Sardine Creek | 1965 | 280 | Sacramento River |
| Palen Dam | Dam | Palen Reservoir | Mr. Frederick E. | Sierra | Antelope Creek | 1951 | 146 | Sacramento River |
| Box Canyon Dam | Dam | | Siskiyou County Flood Control and Water Conservation District | Siskiyou | Sacramento River | 1969 | 26,000 | Sacramento River |
| Lake Siskiyou Dam | Dam | | Unknown | Siskiyou | Unknown | Unknown | Unknown | Sacramento River |
| Barker Slough Dam | Dam | | Unknown | Solano | Unknown | Unknown | Unknown | Sacramento River |
| Bascherini Dam | Dam | | Solano Irrigation District | Solano | Tributary Ulatis Creek | 1962 | 19 | Sacramento River |
| Detention Pond A | Reservoir | | City of Dixon | Solano | Offstream | 1989 | 737 | Sacramento River |
| Giles Dam | Dam | | Robert and Jean Brown | Solano | Tributary Sweeney Creek | 1965 | 119 | Sacramento River |
| Hass Slough Dam | Dam | | Unknown | Solano | Unknown | Unknown | Unknown | Sacramento River |
| Lagoon Valley County Park Reservoir | Reservoir | | City of Vacaville | Solano | Tributary Laguna Creek | 1981 | 780 | Sacramento River |
| Maine Prairie 3 Dam | Dam | | Maine Prairie Water District | Solano | Ulatis Creek | 1965 | 96 | Sacramento River |
| Putah Diversion Dam | Dam | Lake Solano | Department of Interior, Bureau of Reclamation | Solano | Putah Creek | 1959 | 720 | Sacramento River |
| Steidlmayer No. 3 Dam | Dam | | Roblee, Inc. | Sutter | Unknown | 1961 | 82 | Sacramento River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Black Butte Dam | Dam | | USACE | Tehama | Stoney Creek | 1963 | 143,700 | Sacramento River |
| Black Butte Regulating Dam | Dam | | City of Santa Clara | Tehama | Stony Creek | 1989 | 52 | Sacramento River |
| Corral Dam | Dam | | T M Cattle Company | Tehama | Kendrick Creek | 1959 | 51 | Sacramento River |
| Deer Creek Reservoir | Reservoir | | Unknown | Tehama | Deer Creek | Unknown | Unknown | Sacramento River |
| Red Bluff Diversion Dam | Dam | Red Bluff Reservoir | Department of Interior, Bureau of Reclamation | Tehama | Sacramento River | 1963 | 4,170 | Sacramento River |
| Red Bluff Diversion Dike 1 | Dike | Red Bluff Reservoir | Department of Interior, Bureau of Reclamation | Tehama | Sacramento River | 1963 | 4,170 | Sacramento River |
| Red Bluff Diversion Dike 2 | Dike | Red Bluff Reservoir | Department of Interior, Bureau of Reclamation | Tehama | Sacramento River | 1963 | 4,170 | Sacramento River |
| Rye Dam | Dam | | T M Cattle Company | Tehama | Kendrick Creek | 1959 | 83 | Sacramento River |
| South Log Pond | Reservoir | | Meyers Motels, Ltd. | Tehama | Tributary Sacramento River | 1957 | 146 | Sacramento River |
| Sunflower Dam | Dam | | Newell T. and Anne W. Partch | Tehama | Sunflower Gulch | 1976 | 420 | Sacramento River |
| Top Cat Dam | Dam | | Paskenta Band of Nomlaki Indians of California | Tehama | Tributary Brannin Creek | 1976 | 516 | Sacramento River |
| Cache Creek Settling Basin | Reservoir | | State Reclamation Board | Yolo | Cache Creek | 1993 | 3,800 | Sacramento River |
| Capay Dam | Dam | Cache Creek | Unknown | Yolo | Unknown | Unknown | Unknown | Sacramento River |
| Davis Creek | Reservoir | | Homestake Mining Company | Yolo | Davis Creek | 1985 | 6,079 | Sacramento River |
| De Boca Reservoir | Reservoir | | John Hancock Life Insurance | Yolo | Tributary Deer Creek | 1952 | 225 | Sacramento River |
| Sacramento Bypass | Weir | | Unknown | Yolo | Unknown | Unknown | Unknown | Sacramento River |
| Yolo Bypass | Weir | Freemont Weir | USACE | Yolo | Sacramento River | Unknown | Unknown | Sacramento River |
| Camp Far West Dam | Dam | Camp Far West Reservoir | South Sutter Water District | Yuba | Bear River | 1963 | 104,500 | Sacramento River |
| Camp Far West Diversion Dam | Dam | | South Sutter Water District | Yuba | Bear River | 1977 | 425 | Sacramento River |
| Elizabeth Waters Reservoir | Reservoir | | Fellowship of Friends | Yuba | Woods Creek | 1981 | 42 | Sacramento River |
| Francis, Lake Dam | Dam | | Yuba County Water Agency | Yuba | Dobbins Creek | 2000 | 1,905 | Sacramento River |
| Harry L. Englebright Dam | Dam | Harry L. Englebright Lake | Unknown | Yuba | Yuba River | 1941 | 70,000 | Sacramento River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Honcut Creek Ranch No. 1 Dam | Dam | | Honcut Cr Ranch, A Partnership | Yuba | Tributary South Honcut | 1964 | 95 | Sacramento River |
| Lake Nancy | Reservoir | | Fellowship of Friends | Yuba | Woods Creek | 1981 | 61 | Sacramento River |
| Log Cabin Dam | Dam | | Yuba County Water Agency | Yuba | Oregon Creek | 1968 | 89 | Sacramento River |
| Los Verjeles Dam | Dam | Mildred Lake | Thousand Trails, Inc | Yuba | Dry Creek | 1915 | 1,530 | Sacramento River |
| Lu Pan Reservoir | Reservoir | | Fellowship of Friends | Yuba | Tributary Branch Creek | 1981 | 37 | Sacramento River |
| New Bullards Bar Reservoir | Reservoir | | Yuba County Water Agency | Yuba | North Yuba River | 1970 | 969,600 | Sacramento River |
| Swan Lake | Reservoir | | Fellowship of Friends | Yuba | Tributary Dry Creek | 1981 | 24 | Sacramento River |
| Virginia Ranch | Reservoir | | Browns Valley Irrigation District | Yuba | Dry Creek | 1963 | 57,000 | Sacramento River |
| Almond Dam | Dam | Almond Reservoir | East Bay Municipal District | Alameda | Offstream | 1954 | 20 | San Francisco Bay |
| Arroyo Mocho Gaging Weir | Weir | | Unknown | Alameda | Unknown | Unknown | Unknown | San Francisco Bay |
| Berryman Reservoir Dam | Dam | Berryman Reservoir | East Bay Municipal District | Alameda | Offstream | 1905 | 45 | San Francisco Bay |
| Calaveras Dam | Dam | Calaveras Reservoir | City and County of San Francisco | Alameda | Calaveras Creek | 1925 | 100,000 | San Francisco Bay |
| Central Dam | Dam | | East Bay Municipal District | Alameda | Offstream | 1910 | 485 | San Francisco Bay |
| Cerrito Creek Dam | Dam | Cerrito Creek Dam | Unknown | Alameda | Unknown | Unknown | Unknown | San Francisco Bay |
| Chabot Dam | Dam | | East Bay Municipal District | Alameda | San Leandro Creek | 1892 | 10,281 | San Francisco Bay |
| Cull Creek Dam | Dam | | Alameda Company Public Works Agriculture | Alameda | Cull Creek | 1963 | 310 | San Francisco Bay |
| Decoto Reservoir Dam | Dam | Decoto Reservoir | Alameda County Water District | Alameda | Offstream | 1966 | 46 | San Francisco Bay |
| Del Valle Dam | Dam | Lake Del Valle | California Department of Water Resources | Alameda | Arroyo Valle | 1968 | 77,100 | San Francisco Bay |
| Dunsmuir Reservoir Dam | Dam | Dunsmuir Reservoir | East Bay Municipal District | Alameda | Offstream | 1968 | 197 | San Francisco Bay |
| Estates Dam | Dam | Reservoir Number One | East Bay Municipal District | Alameda | Tributary San Francisco Bay | 1903 | 56 | San Francisco Bay |
| James H Turner Dam | Dam | San Antonio Reservoir | City and County of San Francisco | Alameda | San Antonio Creek | 1964 | 50,500 | San Francisco Bay |
| Lake Temescal Dam | Dam | Lake Temescal | East Bay Regional Park District | Alameda | Temescal Creek | 1869 | 200 | San Francisco Bay |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Mayhew Reservoir Dam | Dam | Mayhew Reservoir | Alameda County Water District | Alameda | Offstream | 1962 | 18 | San Francisco Bay |
| Middlefield Reservoir Dam | Dam | Middlefield Reservoir | Alameda County Water District | Alameda | Offstream | 1958 | 22 | San Francisco Bay |
| New Upper San Leandro Dam | Dam | Upper San Leandro Reservoir | East Bay Municipal District | Alameda | San Leandro Creek | 1977 | 42,000 | San Francisco Bay |
| Patterson Dam | Dam | | California Department of Water Resources | Alameda | Offstream | 1962 | 98 | San Francisco Bay |
| Patterson Dam | Dam | | Alameda County Water District | Alameda | Offstream | 1962 | 46 | San Francisco Bay |
| Piedmont Dam | Dam | Reservoir Number Two | East Bay Municipal District | Alameda | Offstream | 1905 | 60 | San Francisco Bay |
| Quarry Pits | Reservoir | | Alameda County Water District | Alameda | Old Alameda Creek | 1997 | 3,360 | San Francisco Bay |
| Rubber Dam 1 | Dam | | Alameda County Water District | Alameda | Alameda Creek | 1965 | 416 | San Francisco Bay |
| Rubber Dam 3 | Dam | | Alameda County Water District | Alameda | Alameda Creek | 1990 | 154 | San Francisco Bay |
| San Lorenzo Creek Dam | Dam | Don Castro Reservoir | Alameda Company Public Works Agriculture | Alameda | San Lorenzo Creek | 1964 | 380 | San Francisco Bay |
| Seneca Dam | Dam | Seneca Reservoir | East Bay Municipal District | Alameda | Offstream | 1950 | 92 | San Francisco Bay |
| Shinn Reservoir | Reservoir | | Alameda County Water District | Alameda | Tributary Alameda Creek | 1987 | 390 | San Francisco Bay |
| South Reservoir | Reservoir | | East Bay Municipal District | Alameda | Offstream | 1956 | 156 | San Francisco Bay |
| Three J Ranch | Reservoir | | Laborers Pen TR FND NCAL | Alameda | Ranch Gulley | 1955 | Unknown | San Francisco Bay |
| Ward Creek Dam | Dam | | Alameda Company Public Works Agriculture | Alameda | Ward Creek | 1963 | 130 | San Francisco Bay |
| Argyle No. 2 Dam | Dam | | East Bay Municipal District | Contra Costa | Offstream | 1970 | 22 | San Francisco Bay |
| Briones Dam | Dam | Briones Reservoir | East Bay Municipal District | Contra Costa | Bear Creek | 1964 | 67,520 | San Francisco Bay |
| C L Tilden Park Dam | Dam | Lake Anza | East Bay Municipal District | Contra Costa | Wildcat Creek | 1938 | 268 | San Francisco Bay |
| Clearwell Phase 2 Dam | Dam | | East Bay Regional Park District | Contra Costa | Grayson Creek | 1977 | 100 | San Francisco Bay |
| Danville Dam | Dam | | Contra Costa Sanitation District | Contra Costa | Offstream | 1961 | 45 | San Francisco Bay |
| Deer Creek Dam | Dam | | East Bay Municipal District | Contra Costa | Deer Creek | 1963 | 233 | San Francisco Bay |
| East Bay Municipal Urban Development Erosion Dam | Dam | San Pablo Creek | Contra Costa County Flood Control and Water Conservation District | Contra Costa | Unknown | Unknown | Unknown | San Francisco Bay |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Galindo Creek Dam No. 1 | Dam | | Unknown | Contra Costa | Unknown | Unknown | Unknown | San Francisco Bay |
| Galindo Creek Dam No. 2 | Dam | | Unknown | Contra Costa | Unknown | Unknown | Unknown | San Francisco Bay |
| Lafayette Dam | Dam | Lafayette Reservoir | Unknown | Contra Costa | Lafayette Creek | 1929 | 4250 | San Francisco Bay |
| Lake La Salle Dam | Dam | Las Trampas Creek | East Bay Municipal District | Contra Costa | Unknown | Unknown | Unknown | San Francisco Bay |
| Lake Orinda Dam | Dam | Cascade Lake | Unknown | Contra Costa | Cascade Creek | 1935 | 200 | San Francisco Bay |
| Leland Dam | Dam | | Orinda Country Club | Contra Costa | Offstream | 1955 | 60 | San Francisco Bay |
| Mallard Dam | Dam | Mallard Reservoir | East Bay Municipal District | Contra Costa | Offstream | 1930 | 3,113 | San Francisco Bay |
| Maloney Dam | Dam | Maloney Reservoir | Contra Costa Water District | Contra Costa | Offstream | 1960 | 68 | San Francisco Bay |
| Martinez Dam | Dam | Martinez Reservoir | East Bay Municipal District | Contra Costa | Pacheco Creek Offstream | 1947 | 296 | San Francisco Bay |
| Moraga Dam | Dam | Moraga Reservoir | Department of Interior, Bureau of Reclamation | Contra Costa | Offstream | 1965 | 36 | San Francisco Bay |
| North Reservoir | Reservoir | | East Bay Municipal District | Contra Costa | Offstream | 1961 | 244 | San Francisco Bay |
| Pine Creek Dam | Dam | | East Bay Municipal District | Contra Costa | Pine Creek | 1956 | 225 | San Francisco Bay |
| Pine Creek Detention Basin Dam | Dam | | Contra Costa County Flood Control and Water Conservation District | Contra Costa | Pine Creek | 1981 | 320 | San Francisco Bay |
| Rheem Creek | Reservoir | | Contra Costa County Flood Control and Water Conservation District | Contra Costa | Rheem Creek | 1960 | Unknown | San Francisco Bay |
| San Pablo Clearwell Dam | Dam | | USACE, Contra Costa County Flood Control and Water Conservation District | Contra Costa | Offstream | 1922 | 17 | San Francisco Bay |
| San Pablo Reservoir | Reservoir | | East Bay Municipal District | Contra Costa | San Pablo Creek | 1920 | 43,193 | San Francisco Bay |
| Sobrante Clearwell Dam | Dam | | East Bay Municipal District | Contra Costa | Offstream | 1964 | 25 | San Francisco Bay |
| Summit Dam | Dam | Summit Reservoir | East Bay Municipal District | Contra Costa | Tributary Wildcat Creek | 1891 | 117 | San Francisco Bay |
| Walnut Creek Clearwell Dam | Dam | | East Bay Municipal District | Contra Costa | Offstream | 1967 | 25 | San Francisco Bay |
| Alpine Dam | Dam | | Marin Municipal Water District | Marin | Lagunitas Creek | 1917 | 8,892 | San Francisco Bay |
| Arroyo San Jose | Weir | | Unknown | Marin | Unknown | Unknown | Unknown | San Francisco Bay |
| Big Rock Ranch | Reservoir | | Lucas Film, Ltd. | Marin | Nicasio Creek Tributary To Lagunitas Creek | 2002 | 91 | San Francisco Bay |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Bon Tempe Dam | Dam | Bon Tempe Lake | Marin Municipal Water District | Marin | Lagunitas Creek | 1949 | 4,300 | San Francisco Bay |
| Dolcini Dam | Dam | | Ms Elizabeth W Dolcini | Marin | Salmon Creek | 1949 | 70 | San Francisco Bay |
| Fairfax Creek Dam | Dam | | Unknown | Marin | Unknown | Unknown | Unknown | San Francisco Bay |
| Lagunitas Dam | Dam | Lake Lagunitas | Marin Municipal Water District | Marin | Lagunitas Creek | 1872 | 341 | San Francisco Bay |
| Nicasio Dam | Dam | Nicasio Reservoir | Marin Municipal Water District | Marin | Nicasio Creek | 1961 | Unknown | San Francisco Bay |
| Novato Creek Dam | Dam | Stafford Lake | North Marin County Water District | Marin | Novato Creek | 1951 | 4,430 | San Francisco Bay |
| Peters Dam | Dam | Kent Lake | Marin Municipal Water District | Marin | Lagunitas Creek | 1954 | 32,900 | San Francisco Bay |
| Phoenix Lake Dam | Dam | Phoenix Lake Reservoir | Marin Municipal Water District | Marin | Ross Creek | 1907 | 612 | San Francisco Bay |
| San Anselmo Creek Dam | Dam | | Unknown | Marin | Unknown | Unknown | Unknown | San Francisco Bay |
| Seeger Reservoir | Reservoir | | Marin Municipal Water District | Marin | Nicasio Creek | 1961 | 22,400 | San Francisco Bay |
| Soulajule Dam | Dam | Soulajule Reservoir | Marin Municipal Water District | Marin | Arroyo Sausal | 1979 | 10,700 | San Francisco Bay |
| Vonsen Dam | Dam | | Mrs. Mary Volpi | Marin | Tributary San Antonio Creek | 1951 | 70 | San Francisco Bay |
| Walker Creek | Reservoir | | Marin County Office of Education | Marin | Tributary Walker Creek | 1976 | 66 | San Francisco Bay |
| Angwin Dam | Dam | | Pacific Union College | Napa | Moore Creek | 1967 | 156 | San Francisco Bay |
| B J Robinson Dam | Dam | | Massimo De Simoni | Napa | Tulocay Creek | 1957 | 49 | San Francisco Bay |
| Bassett Brown Dam | Dam | | Dr. Bassett Brown | Napa | Tributary Sage Creek | 1990 | 36 | San Francisco Bay |
| Bell Canyon Dam | Dam | Bell Canyon Reservoir | City of St. Helena | Napa | Bell Creek | 1959 | 2,530 | San Francisco Bay |
| Buena Vista Winery Dam | Dam | | Buena Vista Winery, Inc | Napa | Tributary Hudeman Slough | 1971 | 120 | San Francisco Bay |
| Camille, Lake Dam | Dam | | Napa State Hospital | Napa | Tributary Tulucay Creek | 1880 | 47 | San Francisco Bay |
| Circle S Dam | Dam | | Circle S Ranch, LLC Chris Millich | Napa | Tributary Milliken Creek | 1979 | 131 | San Francisco Bay |
| Conn Dam | Dam | Lake Hennessey | City of Napa | Napa | Conn Creek | 1946 | 31,000 | San Francisco Bay |
| Crystal Dam | Dam | | Bob Dickson | Napa | Tributary Crystal Creek | 1952 | 105 | San Francisco Bay |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Deer Lake Dam | Dam | | Anthony J. and Ione A. Cataldo | Napa | Tributary Angwin Creek | 1958 | 260 | San Francisco Bay |
| East Napa Reservoir | Reservoir | | Howell Mountain Mutual Water Company | Napa | Unknown | Unknown | Unknown | San Francisco Bay |
| Eastside Reservoir Dam | Dam | East Napa Reservoir | City of Napa | Napa | Offstream | 1948 | 92 | San Francisco Bay |
| Foss Valley Dam | Dam | | Atlas Peak Vineyards | Napa | Tributary Milliken Creek | 1988 | 800 | San Francisco Bay |
| Green Valley Lake Dam | Dam | | Heitz Wine Cellars | Napa | Dug Road Gulch | 1956 | 150 | San Francisco Bay |
| Heitz Dam | Dam | | Howell Mountain Mutual Water Company | Napa | Tributary Pope Creek | 1991 | 272 | San Francisco Bay |
| Henne Dam | Dam | | Hudson Vineyards | Napa | Angwin Stream | 1959 | 109 | San Francisco Bay |
| Hudson Vineyards Dam | Dam | | Raymond Vineyard and Cellar, Inc. | Napa | Tributary Huichica Creek | 1983 | 105 | San Francisco Bay |
| Jamieson Vineyards Dam | Dam | | City of Calistoga | Napa | Tributary Fagan Creek | Unknown | 75 | San Francisco Bay |
| Kimball Canyon Dam | Dam | Kimball Reservoir | Ellen MacVeagh | Napa | Kimball Creek | 1939 | 344 | San Francisco Bay |
| La Herradura Dam | Dam | | City of Vallejo | Napa | Tributary Conn Creek | 1948 | 110 | San Francisco Bay |
| Lake Curry Dam | Dam | Lake Curry | Huneeus-Chantre Properties | Napa | Gordon Valley Creek | 1926 | 10,700 | San Francisco Bay |
| Lake Cynthia Dam | Dam | | William E Jarvis | Napa | Tributary Soda Creek | 1955 | 92 | San Francisco Bay |
| Lake Leticia | Reservoir | | William E Jarvis | Napa | Tributary Milliken Creek | 1960 | 115 | San Francisco Bay |
| Lake Marie Dam | Dam | | Elizabeth C Williamson | Napa | Tributary Tulucay Creek | 1908 | 170 | San Francisco Bay |
| Lake Naz Dam | Dam | Lake Naz | Napa State Hospital | Napa | Tributary Napa River | 1955 | 150 | San Francisco Bay |
| Lake William | Reservoir | | City of Napa | Napa | Tributary Milliken Creek | 1960 | 340 | San Francisco Bay |
| Linda Vista Dam | Dam | | William and Barbara Morgan | Napa | Tributary Chiles Creek | 1959 | 52 | San Francisco Bay |
| Milliken Reservoir | Reservoir | | Leroy A Young | Napa | Milliken Creek | 1924 | 1,980 | San Francisco Bay |
| Morgan Reservoir | Reservoir | | Robert Egan | Napa | Tributary Gordon Valley Creek | 1983 | 108 | San Francisco Bay |
| Old Waterworks Dam | Dam | | Howell Mountain Mutual Water Company | Napa | Tributary Napa River | 1883 | 28 | San Francisco Bay |
| Olson Dam | Dam | | Michael J. Maloney | Napa | Ledgewood Creek | 1955 | 200 | San Francisco Bay |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Orville Dam | Dam | Lake Orville | State Department of Vet Affairs | Napa | Angwin Creek | 1959 | 89 | San Francisco Bay |
| Rancho La Jota Dam | Dam | | Sage Canyon LLC, Allan Chapman | Napa | Tributary Conn Creek | 1959 | 170 | San Francisco Bay |
| Rector Creek Dam | Dam | Rector Reservoir | City of St. Helena | Napa | Rector Creek | 1946 | 4,587 | San Francisco Bay |
| Robert L. Matheson Dam | Dam | | Vivette & Company, DBA Saintsbury | Napa | Elder Creek | 1954 | 90 | San Francisco Bay |
| Saint Helena Lower Dam | Dam | | Howard E. Thompson | Napa | Tributary Napa River | 1878 | 210 | San Francisco Bay |
| Scotts Canyon Dam | Dam | | State Department of Veterans Affairs | Napa | Tributary Carneros Creek | 1948 | 58 | San Francisco Bay |
| Thompson Dam | Dam | | C. Mondavi & Sons | Napa | Suisun Creek | 1958 | 23 | San Francisco Bay |
| Veterans Home Dam | Dam | Lake Hinman | Mr. Rene Di Rosa | Napa | Tributary Napa River | 1908 | 39 | San Francisco Bay |
| Willow Lake No. 1 | Reservoir | | Unknown | Napa | Tributary Napa River | Proposed | 89 | San Francisco Bay |
| Wine Lake | Reservoir | | John Newmeyer, Green Valley Ranch | Napa | Tributary Carneros Creek | 1953 | 320 | San Francisco Bay |
| Balboa Reservoir | Reservoir | | City and County of San Francisco | San Francisco | Offstream | 1957 | 437 | San Francisco Bay |
| Stanford Heights Dam | Dam | Twin Peaks Reservoir | City and County of San Francisco | San Francisco | Offstream | 1928 | 37 | San Francisco Bay |
| Sunset North Basin Dam | Dam | Sunset Reservoir | City and County of San Francisco | San Francisco | Offstream | 1938 | 275 | San Francisco Bay |
| Sunset South Basin Dam | Dam | | City and County of San Francisco | San Francisco | Offstream | 1960 | 268 | San Francisco Bay |
| Sutro Reservoir Dam | Dam | Sutro Reservoir | City and County of San Francisco | San Francisco | Offstream | 1952 | 96 | San Francisco Bay |
| University Mound North Basin Dam | Dam | | City and County of San Francisco | San Francisco | Offstream | 1885 | 182 | San Francisco Bay |
| University Mound South Basin Dam | Dam | | City and County of San Francisco | San Francisco | Offstream | 1937 | 250 | San Francisco Bay |
| Bear Gulch Dam | Dam | Bear Gulch Reservoir | California Water Service Company | San Mateo | Tributary San Fran Bay | 1896 | 672 | San Francisco Bay |
| Canada Road Dam | Dam | | State Department of Transportation | San Mateo | Tributary San Mateo Creek | 1971 | 74 | San Francisco Bay |
| Crocker Dam | Dam | | Town of Hillsborough | San Mateo | Sanchez Creek | 1890 | 22 | San Francisco Bay |
| Emerald Lake 1 Lower Dam | Dam | Lower Emerald Lake | Emerald Lake Country Club | San Mateo | Tributary San Fran Bay | 1885 | 45 | San Francisco Bay |
| Johnston Dam | Dam | | Peninsula Open Space Trust | San Mateo | Arroyo Leon | 1919 | 30 | San Francisco Bay |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Laurel Creek Dam | Dam | | City of San Mateo | San Mateo | Laurel Creek | 1969 | 55 | San Francisco Bay |
| Lower Crystal Springs Reservoir | Reservoir | Crystal Springs Reservoir | City and County of San Francisco | San Mateo | San Mateo Creek | 1888 | 57,910 | San Francisco Bay |
| Marina Lagoon Dam | Dam | | City of San Mateo | San Mateo | Seal Slough | 1997 | 1,600 | San Francisco Bay |
| Notre Dame | Dam | | Belmont City Department of Public Works | San Mateo | Belmont Creek | Unknown | 120 | San Francisco Bay |
| Pilarcitos Dam | Dam | Pilarcitos Lake | City and County of San Francisco | San Mateo | Pilarcitos Creek | 1866 | 3,100 | San Francisco Bay |
| Pomponio Ranch Dam | Dam | | Ann Bowers | San Mateo | Pomponio Creek | 1952 | 256 | San Francisco Bay |
| Rickey Dam | Dam | | Mid-Peninsula Open Space District | San Mateo | Peters Creek | 1951 | 47 | San Francisco Bay |
| San Andreas Dam | Dam | San Andreas Lake | City and County of San Francisco | San Mateo | Tributary San Mateo Creek | 1870 | 19,027 | San Francisco Bay |
| Searsville Dam | Dam | Searsville Lake | Stanford University Trustee Board | San Mateo | Corte Madera Creek | 1890 | 952 | San Francisco Bay |
| Spenser Lake | Reservoir | | Town of Hillsborough | San Mateo | Tributary San Francisco Bay | 1876 | 73 | San Francisco Bay |
| Upper Crystal Springs Reservoir | Reservoir | | Spring Valley Water Company | San Mateo | Laguna Creek | 1888 | Unknown | San Francisco Bay |
| Almaden Reservoir | Reservoir | | Santa Clara Valley Water District | Santa Clara | Alamitos Creek | 1936 | 2,000 | San Francisco Bay |
| Almaden Valley Dam | Dam | Almaden Reservoir | San Jose Water Agency | Santa Clara | Tributary Alamitos Creek | 1965 | 27 | San Francisco Bay |
| Austrian Dam | Dam | Lake Elsman | San Jose Water Agency | Santa Clara | Los Gatos Creek | 1950 | 6,200 | San Francisco Bay |
| Calero Dam | Dam | Calero Reservoir | Santa Clara Valley Water District | Santa Clara | Calero Creek | 1935 | 9,850 | San Francisco Bay |
| Cherry Flat Dam | Dam | Cherry Flat Reservoir | City of San Jose | Santa Clara | Penitencia Creek | 1936 | 500 | San Francisco Bay |
| Columbine Dam | Dam | | San Jose Water Agency | Santa Clara | Offstream | 1963 | 60 | San Francisco Bay |
| Coyote Dam | Dam | Coyote Lake | Santa Clara Valley Water District | Santa Clara | Coyote Creek | 1936 | 23,666 | San Francisco Bay |
| Coyote Percolation Dam | Dam | | Santa Clara Valley Water District | Santa Clara | Coyote Creek | 1934 | 72 | San Francisco Bay |
| Ed R Levin Dam | Dam | | County of Santa Clara | Santa Clara | Tributary Arroyo de los Coches | 1968 | 150 | San Francisco Bay |
| Elmer J. Chesbro Dam | Dam | Chesbro Reservoir | Santa Clara Valley Water District | Santa Clara | Llagas Creek | 1955 | 8,086 | San Francisco Bay |
| Felt Lake Dam | Dam | | Stanford University Trustee Board | Santa Clara | Tributary Los Trancos Creek | 1930 | 900 | San Francisco Bay |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Foothill Park Dam | Dam | Boronda Lake | City of Palo Alto | Santa Clara | Tributary Los Trancos Creek | 1988 | 67 | San Francisco Bay |
| Grant Company 2 Dam | Dam | Halls Valley Lake | County of Santa Clara | Santa Clara | Arroyo Aguague | 1927 | 400 | San Francisco Bay |
| Guadalupe Dam | Dam | Guadalupe Reservoir | Santa Clara Valley Water District | Santa Clara | Guadalupe Creek | 1935 | 3,460 | San Francisco Bay |
| Higuera Dam | Dam | | Wells Fargo Bank | Santa Clara | South Calera Creek | 1953 | 65 | San Francisco Bay |
| Isabel Lake No. 1 | Reservoir | | O'Neal, Swenson, McDonald and Hait | Santa Clara | Tributary Isabel Creek | 1948 | 717 | San Francisco Bay |
| Isabel Lake No. 2 | Reservoir | | O'Neal, Swenson, McDonald and Hait | Santa Clara | Tributary Isabel Creek | Unknown | 95 | San Francisco Bay |
| James J. Lenihan Dam | Dam | Lexington Reservoir | Santa Clara Valley Water District | Santa Clara | Los Gatos Creek | 1953 | 21,430 | San Francisco Bay |
| Kelly Cabin Can Dam | Dam | | State Department of Parks and Recreation | Santa Clara | Kelly Cabin Canyon Creek | 1955 | 70 | San Francisco Bay |
| Kuhn Dam | Dam | | Peggy Kuhn Thompson | Santa Clara | Tributary Dry Creek | 1947 | 85 | San Francisco Bay |
| Lagunita Dam | Dam | Lagunita Reservoir | Stanford University Board of Trustees | Santa Clara | Tributary San Francisco Bay | 1900 | 280 | San Francisco Bay |
| Lake Chesbro | Reservoir | | Santa Clara Valley Water District | Santa Clara | Llagas Creek | 1955 | 3 | San Francisco Bay |
| Lake Ranch Dam | Dam | Lake Ranch Reservoir | San Jose Water Agency | Santa Clara | Beardsley Creek | 1877 | 222 | San Francisco Bay |
| Laurel Springs Club Dam | Dam | | Laurel Spring Club | Santa Clara | Middle Fork Coyote Creek | 1968 | 250 | San Francisco Bay |
| Leroy Anderson Dam | Dam | Anderson Lake | Santa Clara Valley Water District | Santa Clara | Coyote River | 1950 | 91,280 | San Francisco Bay |
| Lower Howell Dam | Dam | | San Jose Water Agency | Santa Clara | Rundell Creek | 1877 | 153 | San Francisco Bay |
| Rinconada Reservoir Dam | Dam | Rinconada Reservoir | Santa Clara Valley Water District | Santa Clara | Offstream | 1969 | 46 | San Francisco Bay |
| San Felipe Ranch Dam | Dam | | William R Hewlett et al | Santa Clara | Tributary San Felipe Creek | 1959 | 64 | San Francisco Bay |
| San Francisquito Creek Dam | Dam | | Unknown | Santa Clara | Unknown | Unknown | Unknown | San Francisco Bay |
| Standish Reservoir | Reservoir | | Santa Clara Valley Water District | Santa Clara | Coyote Creek | 1994 | 95 | San Francisco Bay |
| Stevens Creek Dam | Dam | Stevens Creek Reservoir | Santa Clara Valley Water District | Santa Clara | Stevens Creek | 1935 | 3,800 | San Francisco Bay |
| Upper Howell Dam | Dam | Howell Reservoir | San Jose Water Agency | Santa Clara | Rundell Creek | 1878 | 243 | San Francisco Bay |
| Vasona Percolation Reservoir | Reservoir | | Santa Clara Valley Water District | Santa Clara | Los Gatos Creek | 1935 | 410 | San Francisco Bay |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Williams Reservoir | Reservoir | | San Jose Water Agency | Santa Clara | Los Gatos Creek | 1895 | 160 | San Francisco Bay |
| Dickson Hill Dam | Dam | | City of Vallejo | Solano | Offstream | 1960 | 27 | San Francisco Bay |
| Fleming Hill No. 2 Dam | Dam | | City of Fairfield | Solano | Tributary Napa River | 1912 | 33 | San Francisco Bay |
| Lake Chabot Dam | Dam | | City of Vallejo | Solano | Blue Rock Springs Creek | 1870 | 504 | San Francisco Bay |
| Lake Frey | Reservoir | | City of Vallejo | Solano | Wild Horse Creek | 1894 | 1,075 | San Francisco Bay |
| Lake Herman Dam | Dam | Lake Herman | City of Benicia | Solano | Sulphur Springs Creek | 1905 | 2,210 | San Francisco Bay |
| Lake Madigan Dam | Dam | Lake Madigan | City of Vallejo | Solano | Wild Horse Creek | 1908 | 1,175 | San Francisco Bay |
| Montezuma Dam | Dam | | Montezuma Wetlands LLC | Solano | Unknown | 2003 | 225 | San Francisco Bay |
| Municipal Dam | Dam | Suisun Reservoir | City of Suisun | Solano | Tributary Suisun Creek | 1939 | 169 | San Francisco Bay |
| Pennsylvania Creek Dam | Dam | | City of Fairfield | Solano | Pennsylvania Creek | 1958 | 148 | San Francisco Bay |
| Pond 2B | Reservoir | | International Technology Corporation | Solano | Tributary Suisun Bay | 1975 | 89 | San Francisco Bay |
| Summit Reservoir Dam | Dam | Summit Reservoir | City of Vallejo | Solano | Offstream | 1968 | 220 | San Francisco Bay |
| Swanzy Lake Dam | Dam | Swanzy Reservoir | City of Vallejo | Solano | Tributary Carquinez Stream | 1931 | 107 | San Francisco Bay |
| Terminal Dam | Dam | Terminal Reservoir | Department of Interior, Bureau of Reclamation | Solano | Green Valley Offstream | 1959 | 119 | San Francisco Bay |
| Terminal South Dike | Dike | Terminal Reservoir, South | Department of Interior, Bureau of Reclamation | Solano | Green Valley Offstream | 1959 | 119 | San Francisco Bay |
| Fern Lake Dam | Dam | | Sonoma Developmental Center | Sonoma | Tributary Mill Creek | 1921 | 241 | San Francisco Bay |
| Lawler Dam | Dam | Petaluma Reservoir | City of Petaluma | Sonoma | North Creek | 1910 | 190 | San Francisco Bay |
| Lowrey No. 1 Dam | Dam | | Roy H. Elliott Jr. | Sonoma | Tributary Carriger Creek | 1954 | 82 | San Francisco Bay |
| Paradise Vineyards | Reservoir | | Paradise Vineyards, LLC | Sonoma | Tributary Tolay Creek | 2003 | 100 | San Francisco Bay |
| Pinheiro Dam | Dam | | Frank Teixeria | Sonoma | Tributary Petaluma River | 1967 | 83 | San Francisco Bay |
| Sleepy Hollow 2 Dam | Dam | | Sleepy Hollow Properties | Sonoma | Tributary Petaluma Creek | 1949 | 104 | San Francisco Bay |
| Sonoma Hills Reservoir | Reservoir | | Fred Cline | Sonoma | Tributary Tolay Creek | 1991 | 240 | San Francisco Bay |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Suttenfield Dam | Dam | Suttonfield Lake | Sonoma Developmental Center | Sonoma | Sonoma Creek | 1938 | 600 | San Francisco Bay |
| Sonoma Valley County Sanitation District Reclamation Pond 1 | Reservoir | | Sonoma County Water Agency | Sonoma | Offstream | 1990 | 166 | San Francisco Bay |
| Sonoma Valley County Sanitation District Reclamation Pond 2 | Reservoir | | Sonoma County Water Agency | Sonoma | Offstream | 1990 | 187 | San Francisco Bay |
| Bethany Forebay Dam | Dam | | California Department of Water Resources | Alameda | Tributary Italian Slough | 1961 | 5,250 | San Joaquin River |
| Alpine Auxiliary No. 2 | Auxiliary | | Northern California Power Agency | Alpine | Silver Creek | Unknown | 4,300 | San Joaquin River |
| Alpine Auxiliary No. 3 | Auxiliary | | Northern California Power Agency | Alpine | Silver Creek | Unknown | 4,300 | San Joaquin River |
| Alpine Auxiliary No. 4 | Auxiliary | | Northern California Power Agency | Alpine | Silver Creek | Unknown | 4,300 | San Joaquin River |
| Alpine Dam | Dam | Lake Alpine | Northern California Power Agency | Alpine | Silver Creek | 1906 | 4,600 | San Joaquin River |
| Lower Blue Lake | Reservoir | | Pacific Gas and Electric Company | Alpine | Blue Creek | 1903 | 4,300 | San Joaquin River |
| Meadow Lake | Reservoir | | Pacific Gas and Electric Company | Alpine | Tributary North Fork Mokelumne | 1903 | 5,160 | San Joaquin River |
| North Fork Diversion Dam | Dam | North Fork Diversion Reservoir | Calaveras County Water District | Alpine | North Fork Stanislaus River | 1988 | 120 | San Joaquin River |
| Reba Dam | Dam | Bear Lake | Lake Alpine Water Company | Alpine | Tributary Bloods Creek | 1965 | 361 | San Joaquin River |
| Twin Lakes | Reservoir | | Pacific Gas and Electric Company | Alpine | Tributary North Fork Mokelumne | 1901 | 1,300 | San Joaquin River |
| Union Auxiliary No. 2 | Auxiliary | | Northern California Power Agency | Alpine | Tributary North Fork Stanislaus River | Unknown | 3,200 | San Joaquin River |
| Union Auxiliary No. 3 | Auxiliary | | Northern California Power Agency | Alpine | Tributary North Fork Stanislaus River | Unknown | 3,200 | San Joaquin River |
| Union Auxiliary No. 4 | Auxiliary | | Northern California Power Agency | Alpine | Tributary North Fork Stanislaus River | Unknown | 3,200 | San Joaquin River |
| Union Auxiliary No. 7 | Auxiliary | | Northern California Power Agency | Alpine | Tributary North Fork Stanislaus River | Unknown | 3,200 | San Joaquin River |
| Union Dam | Dam | Union Reservoir | Northern California Power Agency | Alpine | North Fork Stanislaus River | 1902 | 2,000 | San Joaquin River |
| Upper Blue Creek Dam | Dam | Upper Blue Lake | Pacific Gas and Electric Company | Alpine | Blue Creek | 1901 | 7,500 | San Joaquin River |
| Utica Auxiliary No. 2 | Auxiliary | | Northern California Power Agency | Alpine | Tributary North Fork Stanislaus River | Unknown | 2,500 | San Joaquin River |
| Utica Auxiliary No. 3 | Auxiliary | | Northern California Power Agency | Alpine | Tributary North Fork Stanislaus River | Unknown | 2,500 | San Joaquin River |
| Utica Auxiliary No. 4 | Auxiliary | | Northern California Power Agency | Alpine | Tributary North Fork Stanislaus River | Unknown | 2,500 | San Joaquin River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Utica Auxiliary No. 5 | Auxiliary | | Northern California Power Agency | Alpine | Tributary North Fork Stanislaus River | Unknown | 2,500 | San Joaquin River |
| Utica No. 1 Dam | Dam | Utica Reservoir | Northern California Power Agency | Alpine | North Fork Stanislaus River | 1908 | 2,400 | San Joaquin River |
| Arroyo Seco Dam | Dam | Loch Lake | C Howard East-Howard Prop. | Amador | Tributary Dry Creek | 1957 | 2,433 | San Joaquin River |
| Bear River Dam | Dam | Bear River Reservoir | Pacific Gas and Electric Company | Amador | Bear River | 1900 | 6,818 | San Joaquin River |
| Bear Valley SH Dam | Dam | | Bear Valley Water District | Amador | Tributary Bloods Creek | 1975 | 346 | San Joaquin River |
| CSP Mule Creek Dam | Dam | | State Department of Corrections | Amador | Offstream | 1988 | 535 | San Joaquin River |
| Electra Diversion Dam | Dam | | Unknown | Amador | North Fork Mokelumne River | 1947 | 65 | San Joaquin River |
| Goffinet Dam | Dam | | Dave Maiyero | Amador | Jackass Creek | 1954 | 197 | San Joaquin River |
| Henderson Dam | Dam | Henderson Reservoir | Amador Regional Sanitation Authority | Amador | Jackass Creek | 1923 | 500 | San Joaquin River |
| Ione Canal | Reservoir | | Amador Water Agency | Amador | Ione Canyon | 1962 | 24 | San Joaquin River |
| Jackson Creek Dam | Dam | Lake Amador | Jackson Valley Irrigation District | Amador | Jackson Creek | 1965 | 22,000 | San Joaquin River |
| Jackson Creek Spillway Dam | Dam | | East Bay Municipal District | Amador | Mokelumne River | Unknown | 198,000 | San Joaquin River |
| Jameson Dam | Dam | | Robert Jameson | Amador | Cosumnes River | 1951 | 102 | San Joaquin River |
| John Orr Dam | Dam | | Chris H. and Fay E. Gansberg | Amador | Tributary Jackson Cr | 1959 | 152 | San Joaquin River |
| Lake Tabeaud Dam | Dam | Lake Tabeaud | Pacific Gas and Electric Company | Amador | South Fork Jackson Creek | 1901 | 1,170 | San Joaquin River |
| Lower Bear River Reservoir | Reservoir | | Pacific Gas and Electric Company | Amador | Bear River | 1952 | 48,750 | San Joaquin River |
| Pardee Dam | Dam | Pardee Reservoir | East Bay Municipal District | Amador | Mokelumne River | 1929 | 197,950 | San Joaquin River |
| Plymouth Effluent Reservoir | Reservoir | | City of Plymouth | Amador | Tributary L Indian Creek | 1989 | 187 | San Joaquin River |
| Pond K | Reservoir | | Unimin Corporation | Amador | Unknown | 2006 | 1,056 | San Joaquin River |
| Preston Dam | Dam | Preston Reservoir | Amador Regional Sanitation Authority | Amador | Tributary Mule Creek | 1949 | 268 | San Joaquin River |
| Preston Forebay | Reservoir | | Amador Regional Sanitation Authority | Amador | Offstream | 1892 | 30 | San Joaquin River |
| Rancheria Creek | Reservoir | | Unknown | Amador | Unknown | Unknown | Unknown | San Joaquin River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| SGV Waste Pond No. 2 | Reservoir | | Sutter Gold Venture | Amador | Tributary Amador Creek | Unknown | 419 | San Joaquin River |
| SGV Waste Pond No. 3 | Reservoir | | Sutter Gold Venture | Amador | Tributary Amador Creek | Unknown | 60 | San Joaquin River |
| Shenandoah Lake Dam | Dam | Steiner Pond | HFH, Ltd. | Amador | Pigeon Creek | 1962 | 168 | San Joaquin River |
| Tiger Creek Forebay | Reservoir | | Pacific Gas and Electric Company | Amador | Tributary Tiger Creek | 1931 | 36 | San Joaquin River |
| Tiger Creek Regulator Dam | Dam | | Pacific Gas and Electric Company | Amador | Tiger Creek | 1931 | 523 | San Joaquin River |
| Upper Bear River Dam | Dam | Bear River Dam | Pacific Gas and Electric Company | Amador | Bear River | 1900 | 7,400 | San Joaquin River |
| Vicini Dam | Dam | | Gordon J. Vicini | Amador | Tributary Willow Creek | 1980 | 150 | San Joaquin River |
| West Point Regulating Dam | Dam | | Calaveras County Water District | Amador | Ruse Creek | 1965 | 60 | San Joaquin River |
| Andrew Cademartori Dam | Dam | | Union Public Utility District | Calaveras | Seasonal Stream | 1983 | 142 | San Joaquin River |
| Bevanda Dam | Dam | | Ryan Voorhees | Calaveras | Tributary Calaveras River | 1925 | 90 | San Joaquin River |
| Cherokee Dam | Dam | | W. A. Spence, et ux. | Calaveras | Cherokee Creek | 1959 | 630 | San Joaquin River |
| Christensen No. 1 Dam | Dam | | Sainte Limited | Calaveras | Steele Creek | 1951 | 69 | San Joaquin River |
| Copper Cove Dam | Dam | | Calaveras County Water District | Calaveras | Tributary Littlejohns Creek | 1993 | 205 | San Joaquin River |
| Copperopolis Dam | Dam | Copperopolis Reservoir | Jon and Angelita Janofsky | Calaveras | Penney Creek | 1905 | 225 | San Joaquin River |
| Calaveras Public Utility District Middle Fork Dam | Dam | Schaad's Reservoir | Calaveras Public Utility District | Calaveras | Middle Fork Mokelumne River | 1939 | 2,000 | San Joaquin River |
| Emery Dam | Dam | | M-24 Ranch Association | Calaveras | McKinneys Creek | 1850 | 630 | San Joaquin River |
| Ferrario Dam | Dam | | Robert and Lynn Wilson | Calaveras | Tributary Bear Creek | 1955 | 250 | San Joaquin River |
| Flotation Tails | Reservoir | | Meridian Gold Company | Calaveras | Tributary Little Johns Creek | 1989 | 3,680 | San Joaquin River |
| Flowers Dam | Dam | | Oak Canyon Ranch, LLC | Calaveras | Little Johns Creek | 1957 | 724 | San Joaquin River |
| Fly-In-Acres Dam | Dam | | Blue Lakes Springs Homeowners | Calaveras | Moran Creek | 1953 | 58 | San Joaquin River |
| Forest Meadows Dam | Dam | | Forest Meadows Development Co. | Calaveras | Angels Creek | 1975 | 117 | San Joaquin River |
| Goodwin Dam | Dam | | Riverside County Flood Control and Water Conservation District | Calaveras | Stanislaus River | 1912 | 500 | San Joaquin River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Hein Dam | Dam | | Naki Corporation | Calaveras | Tributary Bear Creek | 1962 | 145 | San Joaquin River |
| Holman Dam | Dam | | City of Angels | Calaveras | Tributary Angels Creek | 1976 | 250 | San Joaquin River |
| Hunters Dam | Dam | | Utica Power Authority | Calaveras | Mill Creek | 1928 | 253 | San Joaquin River |
| Jeff Davis Dam | Dam | | Calaveras Public Utility District | Calaveras | Tributary Wet Gulch Creek | 1973 | 1,800 | San Joaquin River |
| La Contenta Reservoir | Reservoir | | Calaveras County Water District | Calaveras | Tributary Cosgrove Spring | 2002 | 172 | San Joaquin River |
| LCRMF Dam | Dam | | Meridian Gold Company | Calaveras | Tributary Clover Creek | 1989 | 480 | San Joaquin River |
| LCRMF-PWRP Dam | Dam | | Meridian Gold Company | Calaveras | Offstream | 1989 | 82 | San Joaquin River |
| McCarty Dam | Dam | | Patricia McCarty | Calaveras | Tributary Johnny Creek | 1938 | 93 | San Joaquin River |
| Middle Fork Dam | Dam | Schaads Reservoir | Calaveras Public District | Calaveras | Middle Fork Mokelumne River | 1939 | 1,700 | San Joaquin River |
| Mokelumne Hill Dam | Dam | | Mokelumne Hill Sanitary District | Calaveras | Tributary Mokelumne River | 1973 | 52 | San Joaquin River |
| Murphys Afterbay Dam | Dam | | Utica Power Authority | Calaveras | Tributary Angels Creek | 1953 | 40 | San Joaquin River |
| Murphys Forebay Dam | Dam | | Utica Power Authority | Calaveras | Tributary Angels Creek | 1953 | 54 | San Joaquin River |
| Murphys Wastewater Dam | Dam | | Murphys Sanitary District | Calaveras | Offstream | 1980 | 140 | San Joaquin River |
| New Hogan Dam | Dam | New Hogan Lake | USACE | Calaveras | Calaveras River | 1963 | 317,100 | San Joaquin River |
| New Melones Dam | Dam | Melones Lake | Unknown | Calaveras | Stanislaus River | 1979 | 2,870,000 | San Joaquin River |
| Old McCormick Reservoir | Reservoir | | Unknown | Calaveras | Unknown | Unknown | Unknown | San Joaquin River |
| Pine Peak No. 4 Dam | Dam | | The Mariner Group | Calaveras | Tributary North Fork Calaveras River | 1955 | 73 | San Joaquin River |
| Redhawk Lake | Reservoir | | Calaveras Public District | Calaveras | North Fork Calaveras River | 1882 | 2,760 | San Joaquin River |
| Reid Dam | Dam | | Raymond J. Vernazza | Calaveras | Esperanza Creek | 1969 | 70 | San Joaquin River |
| Ross Dam | Dam | Ross Reservoir | Utica Power Authority | Calaveras | French Gulch Creek | 1895 | 85 | San Joaquin River |
| Salt Springs Dam | Dam | Salt Springs Reservoir | Rock Creek Water District | Calaveras | North Fork Mokelumne River | 1931 | 141,900 | San Joaquin River |
| Salt Springs Valley Dam | Dam | Salt Springs Valley Reservoir | Rock Creek Water District | Calaveras | Rock Creek | 1882 | 10,900 | San Joaquin River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Skyrocket Mine Dam | Dam | Skyrocket Mine | Meridian Gold Company | Calaveras | Littlejohn Creek | 1999 | 1,715 | San Joaquin River |
| Stanislaus Afterbay | Reservoir | | Pacific Gas and Electric Company | Calaveras | Middle Fork Stanislaus River | 1963 | 35 | San Joaquin River |
| Stanislaus Forebay East | Reservoir | | Pacific Gas and Electric Company | Calaveras | North Fork Stanislaus River Offstream | 1908 | 340 | San Joaquin River |
| Stevenot Reservoir | Reservoir | | Sutton Enterprises | Calaveras | Tributary Carson Creek | 1987 | 150 | San Joaquin River |
| Tanner Dam | Dam | | Lake Mont Pines Homeowners | Calaveras | Cowell Creek | 1959 | 124 | San Joaquin River |
| Tiger Creek Afterbay | Reservoir | | Pacific Gas and Electric Company | Calaveras | North Fork Mokelumne River | 1931 | 3,960 | San Joaquin River |
| Tiger Creek Forebay | Reservoir | | Pacific Gas and Electric Company | Calaveras | Tiger Creek | Unknown | 42 | San Joaquin River |
| Wallace Reservoir | Reservoir | | Wallace Community Services District | Calaveras | Tributary Bear Creek | Unknown | 410 | San Joaquin River |
| White Pines Reservoir | Reservoir | | Calaveras County Water District | Calaveras | San Antonio Creek | 1970 | 262 | San Joaquin River |
| Alhambra Lake | Weir | | Unknown | Contra Costa | Unknown | Unknown | Unknown | San Joaquin River |
| Antioch Reservoir | Reservoir | Antioch Municipal | City of Antioch | Contra Costa | Tributary San Joaquin River | 1935 | 722 | San Joaquin River |
| Clifton Court Forebay | Reservoir | | California Department of Water Resources | Contra Costa | Tributary Old River | 1970 | 29,000 | San Joaquin River |
| Contra Loma Dam | Dam | Contra Loma Reservoir | Department of Interior, Bureau of Reclamation | Contra Costa | San Joaquin River Offstream | 1967 | 2,630 | San Joaquin River |
| Contra Loma Dike No. 2 | Dike | Contra Loma Reservoir | Department of Interior, Bureau of Reclamation | Contra Costa | San Joaquin River Offstream | 1967 | 2,630 | San Joaquin River |
| Contra Loma Dike No. 3 | Dike | Contra Loma Reservoir | Department of Interior, Bureau of Reclamation | Contra Costa | San Joaquin River Offstream | 1967 | 2,630 | San Joaquin River |
| Dry Creek Dam | Dam | | Contra Costa County Flood Control and Water Conservation District | Contra Costa | Dry Creek | 1963 | 330 | San Joaquin River |
| East Antioch Creek | Weir | | Unknown | Contra Costa | Unknown | Unknown | Unknown | San Joaquin River |
| Los Vaqueros Dam | Dam | Los Vaqueros Reservoir | Contra Costa Water Dist | Contra Costa | Kellogg Creek | 1997 | 100,000 | San Joaquin River |
| Marsh Creek Dam | Dam | Marsh Creek Reservoir | Contra Costa County Flood Control and Water Conservation District | Contra Costa | Marsh Creek | 1963 | 4,425 | San Joaquin River |
| Santos Reservoir | Reservoir | | Unimin Corporation | Contra Costa | Unknown | 1987 | 880 | San Joaquin River |
| Aukum View Dam | Dam | | Showcase Ranches Community Services District | El Dorado | Tributary Flat Creek | 1962 | 136 | San Joaquin River |
| Barnett Dam | Dam | | Douglas Milton | El Dorado | Barnett Creek | 1948 | 115 | San Joaquin River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Big Canyon Creek Dam | Dam | | N. Bruce and Barbara E. Ashwill | El Dorado | Big Canyon Creek | 1935 | 395 | San Joaquin River |
| Cameron Park Lake | Reservoir | | Cameron Park Community Services District | El Dorado | Deer Creek | 1951 | 480 | San Joaquin River |
| Crystal Lake Dam | Dam | | Bridlewood Canyon Owners Association | El Dorado | Tributary Deer Creek | 1952 | 225 | San Joaquin River |
| D'Agostini Dam | Dam | | Stanley and Victoria Ri | El Dorado | Spanish Creek | 1950 | 355 | San Joaquin River |
| El Dorado Hills Dam | Dam | | El Dorado Irrigation District | El Dorado | Offstream | 1980 | 200 | San Joaquin River |
| Geotherm WW EVAP3 Dam | Dam | | Mr. R. S. Livermore | El Dorado | Offstream | Unknown | 50 | San Joaquin River |
| Holiday Lake Dam | Dam | Holiday Lake | Holiday Lake Community Services District | El Dorado | Sawmill Creek | 1951 | 150 | San Joaquin River |
| New Bass Lake Dam | Dam | Bass Lake | El Dorado Irrigation District | El Dorado | Carson Creek | 1978 | 745 | San Joaquin River |
| Patterson Dam | Dam | | Lake Oaks Community | El Dorado | Deadman Creek | 1960 | 350 | San Joaquin River |
| Sly Park Dam | Dam | | El Dorado Irrigation District | El Dorado | Sly Park Creek | 1955 | 44,300 | San Joaquin River |
| Sly Park Saddle Dike | Dike | Jenkinson Lake | Department of Interior, Bureau of Reclamation | El Dorado | Sly Park Creek Offstream | 1955 | 44,390 | San Joaquin River |
| Sun Ridge Meadow Dam | Dam | | Sun Ridge Meadow Owners Association | El Dorado | Tributary Latrobe Creek | 1990 | 83 | San Joaquin River |
| Balsam Meadow Dam | Dam | | Southern California Edison Co. | Fresno | West Fork Balsam Creek | 1986 | 2,040 | San Joaquin River |
| Bear Creek Diversion Dam | Dam | Bear Diversion | Southern California Edison Co. | Fresno | Bear Creek | 1927 | 103 | San Joaquin River |
| Big Creek Dam No. 2 | Dam | | Southern California Edison Co. | Fresno | Big Creek | 1913 | 89,800 | San Joaquin River |
| Big Creek Dam No. 3 | Dam | | Southern California Edison Co. | Fresno | Big Creek | 1913 | 89,800 | San Joaquin River |
| Big Creek Dam No. 3A | Dam | | Southern California Edison Co. | Fresno | Big Creek | 1917 | 89,800 | San Joaquin River |
| Big Creek No. 4 Dam | Dam | | Southern California Edison Co. | Fresno | Big Creek | 1913 | 100 | San Joaquin River |
| Big Creek No. 5 Dam | Dam | | Southern California Edison Co. | Fresno | Big Creek | 1921 | 42 | San Joaquin River |
| Big Creek No. 7 Dam | Dam | Redinger Lake | Southern California Edison Co. | Fresno | San Joaquin River | 1951 | 35,000 | San Joaquin River |
| Florence Lake Dam | Dam | Florence | Southern California Edison Co. | Fresno | South Fork San Joaquin River | 1926 | 64,406 | San Joaquin River |
| Friant Dike 1 | Dike | Millerton Lake | Department of Interior, Bureau of Reclamation | Fresno | San Joaquin River Offstream | 1942 | 555,500 | San Joaquin River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Friant Dike 2 | Dike | Millerton Lake | Department of Interior, Bureau of Reclamation | Fresno | San Joaquin River Offstream | 1942 | 555,500 | San Joaquin River |
| Friant Dike 3 | Dike | Millerton Lake , Millerton Highway Embankment | Department of Interior, Bureau of Reclamation | Fresno | San Joaquin River Offstream | 1942 | 555,500 | San Joaquin River |
| Friant Millerton Road Embankment A Dam | Dam | Millerton Lake | Department of Interior, Bureau of Reclamation | Fresno | San Joaquin River Offstream | 1942 | 555,500 | San Joaquin River |
| Huntington Lake 1 Dam | Dam | Huntington Lake | Southern California Edison Co. | Fresno | Big Creek | 1917 | 88,834 | San Joaquin River |
| Kerckhoff Diversion Dam | Dam | | Unknown | Fresno | San Joaquin River | 1920 | 4,200 | San Joaquin River |
| Little Panoche Detention Basin Dam | Dam | Little Panoche Reservoir | Department of Interior, Bureau of Reclamation | Fresno | Little Panoche Creek | 1966 | 13,270 | San Joaquin River |
| Mendota Diversion Dam | Dam | Mendota Pool | Unknown | Fresno | San Joaquin River | 1917 | 3,000 | San Joaquin River |
| Mono Creek Diversion Dam | Dam | Mono Creek | Southern California Edison Co. | Fresno | Mono Creek | 1927 | 45 | San Joaquin River |
| Portal Forebay Dike | Dike | | Southern California Edison Co. | Fresno | Camp 61 Creek | 1956 | 395 | San Joaquin River |
| Portal Powerhouse Forebay | Reservoir | Lake Edison Dam; Lake Thomas A. Edison Dam | Southern California Edison Co. | Fresno | Tributary South Fork San Joaquin River | 1955 | 325 | San Joaquin River |
| San Joaquin River Dam | Dam | | Unknown | Fresno | Unknown | Unknown | Unknown | San Joaquin River |
| Shaver Lake Dam | Dam | Shaver Lake | Southern California Edison Co. | Fresno | Stevenson Creek | 1927 | 135,283 | San Joaquin River |
| Vermilion Valley Dam | Dam | Lake Thomas A Edison | Southern California Edison Co. | Fresno | Mono Creek | 1954 | 125,000 | San Joaquin River |
| No. 1 Forebay | Reservoir | Corrine Lake | Pacific Gas and Electric Company | Madera | Tributary North Fork San Joaquin River | 1896 | 69 | San Joaquin River |
| No. 2 Reservoir | Reservoir | Manzanita Lake | Pacific Gas and Electric Company | Madera | North Fork Willow Creek | 1912 | 168 | San Joaquin River |
| No. 3 Forebay | Reservoir | | Pacific Gas and Electric Company | Madera | Tributary North Fork Willow Creek | 1906 | 20 | San Joaquin River |
| Berenda Slough Dam | Dam | | Chowchilla Water District | Madera | Berenda Slough | 1962 | 960 | San Joaquin River |
| Big Creek No. 6 Dam | Dam | | Southern California Edison Co. | Madera | San Joaquin River | 1923 | 993 | San Joaquin River |
| Black Hawk Dam | Dam | | Breck and Lynn Nott | Madera | Coarse Gold Creek | 1971 | 740 | San Joaquin River |
| Buchanan Dam | Dam | H.V. Eastman Lake | USACE | Madera | Chowchilla River | 1975 | 150,000 | San Joaquin River |
| Chilkoot Dam | Dam | | Pacific Gas and Electric Company | Madera | Chilkoot Creek | 1890 | 308 | San Joaquin River |
| Crane Valley Storage Dam | Dam | Bass Lake | Pacific Gas and Electric Company | Madera | North Fork Willow Creek | 1910 | 45,410 | San Joaquin River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Dry Creek Diversion Dam | Dam | | Unknown | Madera | Unknown | Unknown | Unknown | San Joaquin River |
| Friant Dam | Dam | Millerton Lake | Department of Interior, Bureau of Reclamation | Madera | San Joaquin River | 1942 | 555,500 | San Joaquin River |
| Hidden Dam | Dam | Hensley Lake | USACE | Madera | Fresno River | 1975 | 90,000 | San Joaquin River |
| Lake Jane Dam | Dam | | SWD Investments - Fulton Ranch, Inc. | Madera | Tributary Hildreth Creek | 1961 | 182 | San Joaquin River |
| Madera Lake Dam | Dam | Madera Equalization Reservoir | Madera Irrigation District | Madera | Fresno River | 1958 | 2,300 | San Joaquin River |
| Mammoth Pool Dam | Dam | Mammoth Pool Reservoir | Southern California Edison Co. | Madera | San Joaquin River | 1960 | 123,000 | San Joaquin River |
| Manzanita Diversion Dam | Dam | Manzanita Lake | Pacific Gas and Electric Company | Madera | North Fork Willow Creek | 1917 | 168 | San Joaquin River |
| Middle Lake Dam | Dam | Middle Lake | L R Martin Inc | Madera | Tributary Buzzard Canyon | 1953 | 74 | San Joaquin River |
| Oakhurst Wastewater Treatment Facility Reservoir | Reservoir | | Madera County Maintenance District 22A | Madera | Tributary Fresno River | 2005 | 110 | San Joaquin River |
| San Joaquin No. 3 Forebay | Reservoir | | Pacific Gas and Electric Company | Madera | North Fork Willow Creek | 1906 | 19 | San Joaquin River |
| Sierra Vista Dam | Dam | | OK Property Co., Inc. | Madera | Chowchilla River | 1872 | 90 | San Joaquin River |
| Spring Dam | Dam | Yosemite Lakes | Yosemite Lakes Owners Association | Madera | Longhollow Creek | 1971 | 152 | San Joaquin River |
| Upper Wilcox Reservoir | Reservoir | | C B S Development Corporation | Madera | Tributary Picayunne Creek | 1930 | 200 | San Joaquin River |
| Wishon Forebay | Reservoir | Corrine Lake | Pacific Gas and Electric Company | Madera | North Fork Willow Creek | 1896 | 69 | San Joaquin River |
| Bear Dam | Dam | | USACE | Mariposa | Bear Creek | 1954 | 7,700 | San Joaquin River |
| Exchequer Dike | Dike | | Merced Irrigation District | Mariposa | Merced River | Unknown | 1,200,000 | San Joaquin River |
| Green Valley Dam | Dam | | Traian and Alina Micu | Mariposa | Smith Creek | 1957 | 240 | San Joaquin River |
| Hendricks Dam | Dam | | Joe Surprenant | Mariposa | Tributary Horse Creek | 1958 | 130 | San Joaquin River |
| Mariposa Creek Weirs | Weir | | Unknown | Mariposa | Unknown | Unknown | Unknown | San Joaquin River |
| Mariposa Dam | Dam | Mariposa Reservoir | USACE | Mariposa | Mariposa Creek | 1948 | 15,000 | San Joaquin River |
| McMahon Dam | Dam | | Russell S Rolfe, et ux. | Mariposa | Maxwell Creek | 1957 | 520 | San Joaquin River |
| McSwain Dam | Dam | | Merced Irrigation District | Mariposa | Merced River | 1966 | 9,730 | San Joaquin River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Metzger Dam | Dam | | Dennis Seastrom | Mariposa | Dutch Creek | 1956 | 75 | San Joaquin River |
| New Exchequer Dam | Dam | Lake McClure | Merced Irrigation District | Mariposa | Merced River | 1967 | 1,032,000 | San Joaquin River |
| Owens Dam | Dam | | USACE | Mariposa | Owens Creek | 1949 | 3,600 | San Joaquin River |
| Stockton Creek Dam | Dam | | Mariposa Public Utility District | Mariposa | Stockton Creek | 1950 | 368 | San Joaquin River |
| Whispering Oaks Dam | Dam | Bear Creek Lake | Whispering Oaks West Homeowners Association | Mariposa | Bear Creek | 1968 | 69 | San Joaquin River |
| Burns Creek Dam | Dam | | USACE | Merced | Burns Creek | 1950 | 6,800 | San Joaquin River |
| Castle Dam | Dam | | County of Merced | Merced | Canyon Creek | 1991 | 7,510 | San Joaquin River |
| Castle Dam | Dam | Canal Creek Flood Detention Reservoir (SJRFP System) | USACE, CVFPB, Merced irrigation District | Merced | Canal Creek | 1993 | 6 | San Joaquin River |
| Crocker Diversion Dam | Dam | | Merced Irrigation District | Merced | Merced River | 1910 | 300 | San Joaquin River |
| Kelsey Dam | Dam | Kelsey Reservoir | H. G. Kelsey, Jr. | Merced | South Fork Dry Creek | 1929 | 1,000 | San Joaquin River |
| Lake Yosemite Dam | Dam | | Merced Irrigation District | Merced | Merced River | 1888 | 8,101 | San Joaquin River |
| Los Banos Creek Detention Dike | Dike | Los Banos Reservoir | Department of Water Resources | Merced | Los Banos Creek | 1966 | 52,920 | San Joaquin River |
| Los Banos Sewage Reservoir | Reservoir | | City of Los Banos | Merced | Tributary Mud Slough | 1963 | 1,200 | San Joaquin River |
| Merced Falls Reservoir | Reservoir | | Pacific Gas and Electric Company | Merced | Merced River | 1901 | 620 | San Joaquin River |
| Merced River Sneling Diversion Dam | Dam | | Unknown | Merced | Unknown | Unknown | Unknown | San Joaquin River |
| Mustang Creek Dam | Dam | | County of Merced | Merced | Mustang Creek | 1975 | 700 | San Joaquin River |
| O'Neill Forebay | Reservoir | O'Neill Forebay Reservoir, San Luis Forebay Reservoir | Department of Interior, Bureau of Reclamation | Merced | San Luis Creek | 1967 | 64,800 | San Joaquin River |
| O'Neill Forebay Dike | Dike | O'Neill Forebay Reservoir, San Luis Forebay Reservoir | Department of Interior, Bureau of Reclamation | Merced | San Luis Creek Offstream | 1967 | 64,800 | San Joaquin River |
| Owens Creek | Reservoir | | USACE | Merced | Owens Creek | 1957 | 8 | San Joaquin River |
| San Luis Dam | Dam | Sisk Dam | Department of Interior, Bureau of Reclamation | Merced | San Luis Creek | 1967 | 2,063,510 | San Joaquin River |
| San Luis Dike | Dike | | Department of Interior, Bureau of Reclamation | Merced | San Luis Creek Offstream | 1967 | 2,063,510 | San Joaquin River |
| Smith's Reservoir | Reservoir | | Lloyds Bank, CA | Merced | Burns Creek | 1941 | 218 | San Joaquin River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Calero Dam | Dam | | Rancho Murieta Community Services District | Sacramento | Crevis Creek | 1982 | 2,832 | San Joaquin River |
| Chesbro Dam | Dam | | Rancho Murieta Community Services District | Sacramento | Tributary Cosumnes River | 1972 | 1,250 | San Joaquin River |
| Clementia Dam | Dam | | Rancho Murieta Community Services District | Sacramento | Tributary Cosumnes River | 1976 | 850 | San Joaquin River |
| Galt Reservoir | Reservoir | | City of Galt | Sacramento | Tributary Laguna Creek | 1983 | 90 | San Joaquin River |
| Granlees Dam | Dam | | Rancho Murieta Community Services District | Sacramento | Cosumnes River | 1921 | 75 | San Joaquin River |
| Hamel Dam | Dam | | Vincent Dedomenico | Sacramento | Tributary Dry Creek | 1957 | 350 | San Joaquin River |
| Michigan Bar No. 1 Dam | Dam | | Rancho Murieta Community Services District | Sacramento | Tributary Cosumnes River | 1989 | 814 | San Joaquin River |
| Michigan Bar No. 2 Dam | Dam | | Rancho Murieta Community Services District | Sacramento | Tributary Cosumnes River | 1983 | 32 | San Joaquin River |
| Mills Dam | Dam | | Paul D. Frank | Sacramento | Tributary Cosumnes River | 1952 | 195 | San Joaquin River |
| Rancho Seco Dam | Dam | | Sacramento Municipal Utility District | Sacramento | Tributary Hadselville Creek | 1972 | 2,950 | San Joaquin River |
| Schneider Dam | Dam | | Leland Schneider | Sacramento | Tributary Arkansas Creek | 1941 | 126 | San Joaquin River |
| Van Vleck Dam | Dam | | Van Vleck Ranch | Sacramento | Tributary Arkansas Creek | 1950 | 2,000 | San Joaquin River |
| Beggs Dam | Dam | | Robert Sprowls | San Joaquin | Tributary Mokelumne River | 1971 | 81 | San Joaquin River |
| Camanche Dam | Dam | Camanche Reservoir | East Bay Municipal District | San Joaquin | Mokelumne River | 1963 | 417,120 | San Joaquin River |
| Camanche Dike No. 1 | Dike | | East Bay Municipal District | San Joaquin | Mokelumne River | Unknown | 431,000 | San Joaquin River |
| Camanche Dike No. 2 | Dike | | East Bay Municipal District | San Joaquin | Mokelumne River | Unknown | 431,000 | San Joaquin River |
| Camanche Dike No. 3 | Dike | | East Bay Municipal District | San Joaquin | Mokelumne River | Unknown | 431,000 | San Joaquin River |
| Camanche Dike No. 4 | Dike | | East Bay Municipal District | San Joaquin | Mokelumne River | Unknown | 431,000 | San Joaquin River |
| Camanche Dike No. 5 | Dike | | East Bay Municipal District | San Joaquin | Mokelumne River | Unknown | 431,000 | San Joaquin River |
| Camanche Dike No. 6 | Dike | | East Bay Municipal District | San Joaquin | Mokelumne River | Unknown | 431,000 | San Joaquin River |
| Davis No. 2 Dam | Dam | | Fred Podesta, Jr. | San Joaquin | Tributary Calaveras River | 1955 | 1,400 | San Joaquin River |
| Farmington Dam | Dam | Farmington Flood Control Basin | USACE | San Joaquin | Rock and Little John Creeks | 1951 | 52,000 | San Joaquin River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Fivemile Slough | Weir | | Unknown | San Joaquin | Unknown | Unknown | Unknown | San Joaquin River |
| Foothill Ranch Dam | Dam | | Lundblad Bros. | San Joaquin | Tributary Calaveras River | 1952 | 100 | San Joaquin River |
| Gilmore Dam | Dam | | Ann Grupe, Susan Depolo and Luanne Malkmus | San Joaquin | Tributary Mormon Slough | 1918 | 550 | San Joaquin River |
| Lower San Joaquin Levee Project (SJRFP system) | Reservoir | | CVFPB, Lower San Joaquin Levee District | San Joaquin | San Joaquin and Fresno Rivers, Bear Creek 1, Berenda and Ash Sloughs, Chowchilla Canal, Eastside, and Mariposa Bypasses | 1966 | Unknown | San Joaquin River |
| Lower San Joaquin River and Tributaries Project (SJRFP system) | Reservoir | | USACE, CVFPB, many Reclamation Districts | San Joaquin | San Joaquin, Stanislaus, Tuolumne, Middle and Old Rivers, Littlejohns Creek, Paradise Cut | 1972 | Unknown | San Joaquin River |
| Maria Reservoir | Reservoir | | Studley Company | San Joaquin | Unknown | 2003 | 277 | San Joaquin River |
| Mine Run Dam | Dam | | East Bay Municipal District | San Joaquin | Mine Run Creek | 1978 | 3 | San Joaquin River |
| Mosher Creek Diversion Dam | Dam | | Natural Resources Conservation Service, San Joaquin Co Flood Control and Water Conservation District, Bear Creek Soil Conservation District | San Joaquin | Mosher Creek | 1967 | Unknown | San Joaquin River |
| Paradise Cut Dam | Dam | Paradise Dam | Unknown | San Joaquin | Unknown | Unknown | Unknown | San Joaquin River |
| Reg WW Cnt Oxid Dam | Dam | | City of Stockton | San Joaquin | Tributary San Joaquin River | 1960 | 2,872 | San Joaquin River |
| Stockton Diverting Canal Dam | Dam | Stockton Diverting Canal | | San Joaquin | Mormon Slough, Calaveras River | 1910 | Unknown | San Joaquin River |
| Woodbridge Diversion Dam | Dam | Lodi Lake | Woodbridge Irrigation District | San Joaquin | Mokelumne River | 1910 | 2,464 | San Joaquin River |
| Woodbridge Diversion Dam | Dam | Lodi Lake | Woodbridge Irrigation District | San Joaquin | Mokelumne River | 2006 | 2462 | San Joaquin River |
| Hartzell Dam | Dam | | Unknown | San Luis Obispo | Unknown | Unknown | Unknown | San Joaquin River |
| Las Tablas Dam | Dam | | Unknown | San Luis Obispo | Unknown | Unknown | Unknown | San Joaquin River |
| Dawson Lake Dam | Dam | | Turlock Irrigation District | Stanislaus | Tributary Tuolumne River | 1896 | 960 | San Joaquin River |
| Haystack Dam | Dam | Haystack Reservoir | USACE | Stanislaus | Black Rascal Creek | Unknown | 8,800 | San Joaquin River |
| La Grange Dam | Dam | La Grange Reservoir | Turlock Irrigation District | Stanislaus | Tuolumne River | 1894 | 500 | San Joaquin River |
| Modesto Effluent Storage Reservoir | Reservoir | | City of Modesto | Stanislaus | Offstream | 1987 | 7,830 | San Joaquin River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Modesto Reservoir | Reservoir | Dallas Warner Reservoir | Modesto Irrigation District | Stanislaus | Tributary Tuolumne River | 1911 | 29,000 | San Joaquin River |
| Orvis Dam | Dam | | C Bruce Orvis | Stanislaus | Buckham Gulch | 1959 | 500 | San Joaquin River |
| Rodden Lake Dam | Dam | Rodden Lake | Oakdale Irrigation District | Stanislaus | Lesnini Creek | 1916 | 380 | San Joaquin River |
| Turlock Lake Dam | Dam | Turlock Lake | Turlock Irrigation District | Stanislaus | Tributary Tuolumne River | 1915 | 45,600 | San Joaquin River |
| Woodward Reservoir | Reservoir | | South San Joaquin Irrigation District | Stanislaus | Simmons Creek | 1918 | 35,000 | San Joaquin River |
| Beardsley Afterbay | Reservoir | | Tri-Dam Project | Tuolumne | Middle Fork Stanislaus River | 1958 | 320 | San Joaquin River |
| Beardsley Dam | Dam | | Tri-Dam Project | Tuolumne | Middle Fork Stanislaus River | 1957 | 77,600 | San Joaquin River |
| Beaver Creek Diversion Dam | Dam | | Calaveras County Water District | Tuolumne | Beaver Creek | 1990 | 20 | San Joaquin River |
| Big Creek Dam | Dam | Pine Mountain Lake | Pine Mountain Lake Association | Tuolumne | Big Creek | 1969 | 7,650 | San Joaquin River |
| Brentwood Park Dam | Dam | | Brentwood Lake Club Inc | Tuolumne | Tributary Sullivan Creek | 1964 | 80 | San Joaquin River |
| Cherry Valley Dam | Dam | | San Francisco Public Utilities Commission | Tuolumne | Cherry Creek | 1956 | 273,500 | San Joaquin River |
| Don Pedro Dam | Dam | Don Pedro Reservoir | Turlock Irrigation District | Tuolumne | Tuolumne River | 1971 | 2,030,000 | San Joaquin River |
| Don Pedro Dike A | Dike | | Turlock and Modesto Irrigation Districts | Tuolumne | Tuolumne River | 1971 | 2,300,000 | San Joaquin River |
| Don Pedro Dike B | Dike | | Turlock and Modesto Irrigation Districts | Tuolumne | Tuolumne River | 1971 | 2,300,000 | San Joaquin River |
| Don Pedro Dike C | Dike | | Turlock and Modesto Irrigation Districts | Tuolumne | Tuolumne River | 1971 | 2,300,000 | San Joaquin River |
| Donnells Dam | Dam | | Tri-Dam Project | Tuolumne | Middle Fork Stanislaus River | 1958 | 56,893 | San Joaquin River |
| Early Intake Dam | Dam | | San Francisco Public Utilities Commission | Tuolumne | Tuolumne River | 1925 | 115 | San Joaquin River |
| Grinding Rock Dam | Dam | | Tuolumne City Sanitary District | Tuolumne | Tributary Turnback Creek | 1979 | 330 | San Joaquin River |
| Groveland Wastewater Reclamation No. 2 Dam | Dam | | Groveland Community Services District | Tuolumne | Tributary Big Creek | 1981 | 172 | San Joaquin River |
| Hetch Hetchy Reservoir | Reservoir | | City and County of San Francisco | Tuolumne | Tuolumne River | 1923 | Unknown | San Joaquin River |
| Jamestown Mine Tailings Dam | Dam | | County of Tuolumne | Tuolumne | Tributary Woods Creek | 1994 | 12,100 | San Joaquin River |
| Kilmer Dam | Dam | | Jack Gardella | Tuolumne | Tributary Dry Creek | 1953 | 99 | San Joaquin River |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Kincaid Dam | Dam | | Tuolumne Utilities District | Tuolumne | Tributary Curtis Creek | 1860 | 50 | San Joaquin River |
| Lake Eleanor Dam | Dam | Lake Eleanor | San Francisco Public Utilities Commission | Tuolumne | Eleanor Creek | 1918 | 28,600 | San Joaquin River |
| Leland Meadows Dam | Dam | | Leland Meadow Water District | Tuolumne | Leland Creek | 1978 | 79 | San Joaquin River |
| Lyons Dam | Dam | Lyons Reservoir | Pacific Gas and Electric Company | Tuolumne | South Fork Stanislaus River | 1930 | 6,228 | San Joaquin River |
| Main Strawberry Dam | Dam | Pinecrest Lake | Pacific Gas and Electric Company | Tuolumne | South Fork Stanislaus River | 1916 | 18,312 | San Joaquin River |
| McKays Point Diversion Dam | Dam | | Unknown | Tuolumne | North Fork Stanislaus River | 1989 | 2,100 | San Joaquin River |
| Meadow Dam | Dam | Lily Creek | Unknown | Tuolumne | Unknown | Unknown | Unknown | San Joaquin River |
| Mid Cooperstown Reservoir | Reservoir | | Jack Gardella | Tuolumne | Tributary Dry Creek | 1947 | 90 | San Joaquin River |
| Moccasin Lower Reservoir | Reservoir | | San Francisco Public Utilities Commission | Tuolumne | Moccasin Creek | 1930 | 554 | San Joaquin River |
| New Spicer Meadow Dam | Dam | New Spicer Meadow | Calaveras County Water District | Tuolumne | Highland Creek | 1989 | 189,000 | San Joaquin River |
| O' Shaughnessy Dam | Dam | Hetch Hetchy Reservoir | San Francisco Public Utilities Commission | Tuolumne | Tuolumne River | 1923 | 360,000 | San Joaquin River |
| Phoenix Dam | Dam | Phoenix Reservoir | Tuolumne Utilities District | Tuolumne | Sullivan Creek | 1880 | 455 | San Joaquin River |
| Pinecrest Lake Dam | Dam | Pinecrest Lake | Unknown | Tuolumne | Unknown | Unknown | Unknown | San Joaquin River |
| Priest Dam | Dam | Priest Reservoir | San Francisco Public Utilities Commission | Tuolumne | Rattlesnake Creek | 1923 | 2,350 | San Joaquin River |
| Quartz Dam | Dam | | Tuolumne Utilities District | Tuolumne | Tributary Woods Creek | 1978 | 1,500 | San Joaquin River |
| Relief Dam | Dam | Relief Reservoir | Pacific Gas and Electric Company | Tuolumne | Summit Creek | 1910 | 15,122 | San Joaquin River |
| San Diego Reservoir Dam | Dam | San Diego Reservoir | Yosemite Junior College District | Tuolumne | Tributary Mormon Creek | 1860 | 40 | San Joaquin River |
| Sand Bar Flat Dam | Dam | Middle Fork Stanislaus River | Unknown | Tuolumne | Bearssley Lake Offstream | Unknown | Unknown | San Joaquin River |
| Stanislaus Forebay | Reservoir | | Pacific Gas and Electric Company | Tuolumne | Tributary Stanislaus River | 1908 | 320 | San Joaquin River |
| Tulloch Dam | Dam | Tulloch Reservoir | Tri-Dam Project | Tuolumne | Stanislaus River | 1958 | 68,400 | San Joaquin River |
| Tuolumne Log Pond | Reservoir | | Tuolumne Bond Me Wuk Indians | Tuolumne | Turn Back Creek | 1912 | 120 | San Joaquin River |
| Twain Harte Lake Dam | Dam | Twain Harte Lake | Twain Harte Lake Association Inc | Tuolumne | Tributary Sullivan Creek | 1928 | 143 | San Joaquin River |
| 10 MG Walteria Dam | Dam | None | City of Torrance | Los Angeles | Offstream | 1953 | 31 | South Coast |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| 10th and Western Dam | Dam | None | City of Glendale | Los Angeles | Offstream | 1924 | 46 | South Coast |
| 18 Mg Walteria Dam | Dam | None | City of Torrance | Los Angeles | Offstream | 1987 | 58 | South Coast |
| Acton Canyon Dam | Dam | None | Unknown | Los Angeles | Unknown | Unknown | Unknown | South Coast |
| Bailey Debris Basin | Debris Basin | | Los Angeles County Department of Public Works | Los Angeles | Bailey Canyon Wash | 1954 | 49 | South Coast |
| Big Dalton Dam | Dam | Big Dalton Reservoir | Los Angeles County Department of Public Works | Los Angeles | Big Dalton Wash | 1929 | 1,290 | South Coast |
| Big Dalton Debris Basin | Debris Basin | | Los Angeles County Department of Public Works | Los Angeles | Big Dalton Wash | 1960 | 193 | South Coast |
| Big Santa Anita Dam | Dam | Big Santa Ana Reservoir | Los Angeles County Department of Public Works | Los Angeles | Tributary Rio Hondo | 1927 | 858 | South Coast |
| Big Tujunga No. 1 Dam | Dam | | Los Angeles County Department of Public Works | Los Angeles | Big Tujunga Creek | 1931 | 5,750 | South Coast |
| Blanchard Debris Bas | Debris Basin | | Los Angeles County Department of Public Works | Los Angeles | Blanchard Canyon | 1966 | 26 | South Coast |
| Bouquet Canyon Dam | Dam | Bouquet Reservoir | City of Los Angeles | Los Angeles | Bouquet Creek | 1934 | 36,505 | South Coast |
| Brand Debris Basin | Debris Basin | | Los Angeles County Department of Public Works | Los Angeles | Brand Debris Basins | 1965 | 42 | South Coast |
| Brand Park Dam | Dam | | City of Glendale | Los Angeles | Offstream | 1930 | 32 | South Coast |
| Castaic Lake Dam | Dam | Castaic Lake | California Department of Water Resources | Los Angeles | Castaic Creek | 1973 | 323,700 | South Coast |
| Century Dam | Dam | | California Department of Parks and Recreation | Los Angeles | Malibu Creek | 1913 | 70 | South Coast |
| Channel Diversion Dike | Dike | | City of Los Angeles | Los Angeles | Storm Drain Channel | 1940 | 437 | South Coast |
| Chatsworth Dam | Dam | Chatsworth Reservoir | City of Los Angeles | Los Angeles | Tributary Los Angeles River | 1918 | 9,886 | South Coast |
| Chevy Chase 1290 Dam | Dam | | City of Glendale | Los Angeles | Tributary Sycamore Can | 1940 | 17 | South Coast |
| Chevy Chase Dam | Dam | | City of Glendale | Los Angeles | Sycamore Creek | 1927 | 46 | South Coast |
| Cogswell Dam | Dam | Cogswell Reservoir | Los Angeles County Department of Public Works | Los Angeles | West Fork San Gabriel River | 1935 | 8,969 | South Coast |
| Devils Gate Dam | Dam | Devils Gate Reservoir | Los Angeles County Department of Public Works | Los Angeles | Arroyo Seco | 1920 | 2,600 | South Coast |
| Diederich Reservoir Dam | Dam | Diederich Reservoir | City of Glendale | Los Angeles | Offstream | 1950 | 174 | South Coast |
| Drinkwater Dam | Dam | Drinkwater Reservoir | City of Los Angeles | Los Angeles | Offstream | 1923 | 92 | South Coast |
| Dry Canyon Dam | Dam | Dry Canyon Reservoir | City of Los Angeles | Los Angeles | Dry Canyon Creek | 1912 | 1,140 | South Coast |
| Eagle Rock Dam | Dam | Eagle Rock Reservoir | City of Los Angeles | Los Angeles | Offstream | 1953 | 254 | South Coast |
| East Glorietta Dam | Dam | | City of Glendale | Los Angeles | Tributary Verdugo Canyon | 1932 | 71 | South Coast |
| Eaton Wash Debris Basin | Debris Basin | | Los Angeles County Department of Public Works | Los Angeles | Eaton Wash | 1936 | 721 | South Coast |
| Elderberry Forebay Dam | Dam | | City of Los Angeles | Los Angeles | Castaic Creek | 1974 | 28,400 | South Coast |
| Elysian Dam | Dam | Elysian Reservoir | City of Los Angeles | Los Angeles | Tributary Los Angeles River | 1943 | 167 | South Coast |
| Encino Dam | Dam | Encino Reservoir | City of Los Angeles | Los Angeles | Encino Creek | 1924 | 9,789 | South Coast |
| Garvey Dam | Dam | Garvey Reservoir | Metropolitan Water District | Los Angeles | Tributary Rio Hondo | 1954 | 1,610 | South Coast |
| Glenoaks 968 Reservoir Dam | Dam | Glenoaks 968 Reservoir | City of Glendale | Los Angeles | Offstream | 1949 | 28 | South Coast |
| Green Verdugo Dam | Dam | | City of Los Angeles | Los Angeles | Tributary Tujunga Wash | 1953 | 99 | South Coast |
| Greystone Reservoir Dam | Dam | Greystone Reservoir | City of Beverly Hills | Los Angeles | Offstream | 1970 | 60 | South Coast |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Haines Canyon Debris Dam | Debris Basin | Haines Canyon Reservoir | USACE Los Angeles District | Los Angeles | Haines Creek | 1938 | 15 | South Coast |
| Hansen Dam | Dam | Hansen Reservoir | USACE Los Angeles District | Los Angeles | Tujunga Wash | 1940 | 44,990 | South Coast |
| Hansen Recreational Lake Dam | Dam | | City of Los Angeles | Los Angeles | Offstream | 1999 | 85 | South Coast |
| J. W. Wisda Dam | Dam | | California Department of Parks and Recreation | Los Angeles | Tributary Topanga Canyon | 1958 | 45 | South Coast |
| La Tuna Debris Basin | Debris Basin | | Los Angeles County Department of Public Works | Los Angeles | La Tuna Canyon | 1960 | 207 | South Coast |
| Laguna Regulating Basin | Reservoir | | Los Angeles County Department of Public Works | Los Angeles | Laguna Wash | 1970 | 310 | South Coast |
| Lindero Dam | Dam | Lake Lindero | Lake Lindero Homeowners Association | Los Angeles | Lindero Creek | 1966 | 90 | South Coast |
| Little Dalton Debris Basin | Debris Basin | | Los Angeles County Department of Public Works | Los Angeles | Little Dalton Canyon | 1960 | 234 | South Coast |
| Live Oak Canyon Dam | Dam | Live Oak Reservoir | Los Angeles County Department of Public Works | Los Angeles | Tributary Marshall Creek | 1975 | 2,500 | South Coast |
| Live Oak Dam | Dam | | Metropolitan Water District | Los Angeles | Live Oak Creek | 1922 | 239 | South Coast |
| Lopez Dam | Dam | Lopez Reservoir | USACE Los Angeles District | Los Angeles | Pacoima Wash | 1954 | 209 | South Coast |
| Los Angeles Reservoir Dam | Dam | Los Angeles Reservoir | City of Los Angeles | Los Angeles | San Fernando Creek | 1977 | 10,000 | South Coast |
| Lower Franklin No. 2 Dam | Dam | | City of Los Angeles | Los Angeles | Franklin Canyon | 1982 | 206 | South Coast |
| Lower Franklin Dam | Dam | Franklin Canyon Reservoir | City of Los Angeles | Los Angeles | Franklin Canyon | 1922 | 920 | South Coast |
| Lower San Fernando Dam | Dam | Lower Van Norman Lake | City of Los Angeles | Los Angeles | San Fernando Creek | 1918 | 10,000 | South Coast |
| Lower Sunset Debris Basin | Debris Basin | | Los Angeles County Department of Public Works | Los Angeles | Sunset Canyon | 1963 | 37 | South Coast |
| Lower Van Norman Bypass Dam | Dam | | City of Los Angeles | Los Angeles | Offstream | 1970 | 240 | South Coast |
| Malibu Lake Club Dam | Dam | | Malibu Lake Mtn Club Inc | Los Angeles | Malibu Creek | 1923 | 500 | South Coast |
| Morgan Debris Basin | Debris Basin | | Los Angeles County Department of Public Works | Los Angeles | Morgan Canyon Creek | 1962 | 21 | South Coast |
| Morris Reservoir Dam | Reservoir | Morris Reservoir | Los Angeles County Department of Public Works | Los Angeles | San Gabriel River | 1935 | 27,500 | South Coast |
| Morris S Jones Dam | Dam | | Pasadena City Department of Water and Power | Los Angeles | Tributary Pit River | 1952 | 154 | South Coast |
| Mulholland Reservoir | Reservoir | Hollywood Reservoir | City of Los Angeles | Los Angeles | Weir Canyon | 1924 | 4,036 | South Coast |
| Pacoima Reservoir | Reservoir | | Los Angeles County Department of Public Works | Los Angeles | Pacoima Creek | 1929 | 3,777 | South Coast |
| Palos Verdes Dam | Dam | Palos Verdes Reservoir | Metropolitan Water District | Los Angeles | Tributary La Harbor | 1939 | 1,100 | South Coast |
| Porter Estate Dam | Dam | | Porter Ranch Development Co | Los Angeles | Tributary Los Angeles River | 1888 | 135 | South Coast |
| Potrero Dam | Dam | Westlake Lake | Westlake Lake Management Association | Los Angeles | Triunfo Canyon Creek | 1967 | 791 | South Coast |
| Puddingstone Dam | Dam | Puddingstone Reservoir | Los Angeles County Department of Public Works | Los Angeles | Walnut Creek | 1928 | 16,342 | South Coast |
| Puddingstone Diversion Dam | Dam | | Los Angeles County Department of Public Works | Los Angeles | San Dimas Wash | 1928 | 150 | South Coast |
| Pyramid Dam | Dam | Pyramid Lake | California Department of Water Resources | Los Angeles | Piru Creek | 1973 | 180,000 | South Coast |
| Reservoir No. 1 | Reservoir | | City of Burbank | Los Angeles | Tributary Los Angeles River | 1928 | 21 | South Coast |
| Reservoir No. 4 | Reservoir | | City of Burbank | Los Angeles | Offstream | 1955 | 34 | South Coast |
| Reservoir No. 5 | Reservoir | | City of Burbank | Los Angeles | Offstream | 1949 | 77 | South Coast |
| Riviera Reservoir Dam | Dam | Riviera Reservoir | City of Santa Monica Department of Public Works | Los Angeles | Offstream | 1962 | 76 | South Coast |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Rubio Debris Basin | Debris Basin | | Los Angeles County Department of Public Works | Los Angeles | Rubio Creek | 1944 | 44 | South Coast |
| San Dimas Dam | Dam | San Dimas Reservoir | Los Angeles County Department of Public Works | Los Angeles | San Dimas Creek | 1922 | 1,534 | South Coast |
| San Gabriel No. 1 Reservoir | Reservoir | | Los Angeles County Department of Public Works | Los Angeles | San Gabriel River | 1938 | 44,183 | South Coast |
| Santa Anita Debris Basin | Debris Basin | | Los Angeles County Department of Public Works | Los Angeles | Santa Anita Wash | 1960 | 116 | South Coast |
| Santa Fe Dam | Dam | Santa Fe Reservoir | USACE Los Angeles District | Los Angeles | San Gabriel River | 1949 | 45,409 | South Coast |
| Santa Ynez Canyon Dam | Dam | | City of Los Angeles | Los Angeles | Tributary Santa Ynez Canyon | 1968 | 356 | South Coast |
| Sawpit Dam | Dam | | Los Angeles County Department of Public Works | Los Angeles | Sawpit Creek | 1927 | 406 | South Coast |
| Sawpit Debris Basin | Debris Basin | | Los Angeles County Department of Public Works | Los Angeles | Sawpit Wash | 1955 | 152 | South Coast |
| Schoolhouse Debris Basin | Debris Basin | | Los Angeles County Department of Public Works | Los Angeles | Mansfield Channel | 1962 | 19 | South Coast |
| Sepulveda Dam | Dam | Sepulveda Reservoir | USACE Los Angeles District | Los Angeles | Los Angeles River | 1941 | 27,563 | South Coast |
| Sierra Madre Dam | Dam | | Los Angeles County Department of Public Works | Los Angeles | Lower Santa Anita Creek | 1928 | 51 | South Coast |
| Sierra Madre Villa Debris Dam | Dam | | Los Angeles County Department of Public Works | Los Angeles | Sierra Madre Canyon | 1958 | 109 | South Coast |
| Silver Lake Dam | Dam | Silver Lake Reservoir | City of Los Angeles | Los Angeles | Tributary Ballona Creek | 1976 | 2,020 | South Coast |
| Stevenson Ranch | Reservoir | | Los Angeles County Department of Public Works | Los Angeles | Pico Canyon Creek | 2004 | 105 | South Coast |
| Stone Canyon Dam | Dam | Stone Canyon Reservoir | City of Los Angeles | Los Angeles | Stone Canyon Creek | 1924 | 10,372 | South Coast |
| Stough Debris Basin | Debris Basin | | Los Angeles County Department of Public Works | Los Angeles | Stough Canyon | 1961 | 67 | South Coast |
| Thompson Dam | Dam | McGee Lake | Los Angeles County Department of Public Works | Los Angeles | Thompson Creek | 1928 | 543 | South Coast |
| Upper Franklin Canyon Reservoir Dam | Dam | Upper Franklin Canyon Reservoir | Los Angeles County Department of Public Works | Los Angeles | Unknown | 1914 | Unknown | South Coast |
| Upper Hollywood Dam | Dam | Hollywood Reservoir | City of Los Angeles | Los Angeles | Weir Canyon | 1933 | 196 | South Coast |
| Upper San Fernando Dam | Dam | | City of Los Angeles | Los Angeles | San Fernando Creek | 1921 | 1,848 | South Coast |
| Upper Stone Canyon Reservoir | Reservoir | | City of Los Angeles | Los Angeles | Stone Canyon Creek | 1954 | 425 | South Coast |
| Van Nuys Dam | Dam | | San Gabriel County Water District | Los Angeles | Offstream | Unknown | 19 | South Coast |
| Westlake Lake Dam | Dam | Westlake Lake | Las Virgenes Municipal Water District | Los Angeles | Tree Springs Creek | 1972 | 9,200 | South Coast |
| Weymouth Memorial Reservoir | Reservoir | | Metropolitan Water District | Los Angeles | Offstream | 1966 | 151 | South Coast |
| Whittier Narrows Dam | Dam | Whittier Narrows Reservoir | USACE Los Angeles District | Los Angeles | San Gabriel River | 1957 | 66,702 | South Coast |
| Whittier Reservoir No. 4 | Reservoir | | City of Whittier Water District | Los Angeles | Tributary San Gabriel River | 1931 | 32 | South Coast |
| Wilson Debris Basin | Debris Basin | | Los Angeles County Department of Public Works | Los Angeles | Wilson Canyon | 1961 | 84 | South Coast |
| Yarnell Debris Basin | Debris Basin | | City of Los Angeles | Los Angeles | Tributary Bull Canyon | 1963 | 105 | South Coast |
| 30 MG Central Reservoir | Reservoir | | City of Brea | Orange | Offstream | 1924 | 92 | South Coast |
| Agua Chinon Dam | Dam | | County of Orange | Orange | Agua Chinon Wash | 1998 | 256 | South Coast |
| Bee Canyon Retention Basin | Retention Basin | | County of Orange | Orange | Bee Canyon Wash | 1994 | 243 | South Coast |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Big Canyon Dam | Dam | | City of Newport Beach | Orange | Tributary Big Canyon Creek | 1959 | 600 | South Coast |
| Bonita Canyon Dam | Dam | | The Irvine Company | Orange | Bonita Creek | 1938 | 323 | South Coast |
| Brea Dam | Dam | Brea Reservoir | USACE Los Angeles District | Orange | Brea Creek | 1942 | 7,420 | South Coast |
| Carbon Canyon Dam | Dam | Carbon Canyon Reservoir | USACE Los Angeles District | Orange | Carbon Canyon Creek | 1961 | 12,063 | South Coast |
| Diemer No. 8 Dam | Dam | | Metropolitan Water District of Southern California | Orange | Offstream | 1968 | 18 | South Coast |
| Diemer Reservoir | Reservoir | | Metropolitan Water District | Orange | Offstream | 1963 | 80 | South Coast |
| Dove Canyon Dam | Dam | | Dove Canyon Master Association | Orange | Dove Creek | 1989 | 415 | South Coast |
| East Hicks Canyon Retarding Basin | Retarding Basin | | County of Orange | Orange | Hicks Canyon Wash | 1997 | 75 | South Coast |
| Eastfoot Retarding Basin | Retarding Basin | | Irvine Community Development Company | Orange | Peters Canyon Wash | 2007 | 213 | South Coast |
| El Toro Reservoir Dam | Dam | El Toro Reservoir | El Toro Water District | Orange | Tributary Oso Creek | 1967 | 877 | South Coast |
| Fullerton Dam | Dam | Fullerton Reservoir | USACE Los Angeles District | Orange | East Fullerton Creek | 1941 | 1,342 | South Coast |
| Galivan Retarding Basin | Retarding Basin | | County of Orange | Orange | Oso Creek | 2000 | 169 | South Coast |
| Harbor View Dam | Dam | | County of Orange | Orange | Jasmine Gulch | 1964 | 28 | South Coast |
| Hicks Canyon Retention Basin | Retention Basin | | County of Orange | Orange | Hicks Canyon Wash | 1997 | 110 | South Coast |
| Laguna Dam | Dam | Laguna Reservoir | The Irvine Company | Orange | Tributary San Diego Creek | 1938 | 300 | South Coast |
| Lake Mission Viejo Dam | Dam | Lake Mission Viejo | Lake Mission Viejo Association Inc | Orange | Oso Creek | 1976 | 4,300 | South Coast |
| Lambert Dam | Dam | Lambert Reservoir | The Irvine Company | Orange | Tributary Newport Bay | 1929 | 174 | South Coast |
| Lower Peters Canyon Retarding Basin | Retarding Basin | | County of Orange | Orange | Peters Canyon Wash | 1990 | 206 | South Coast |
| Marshburn Retarding Basin | Retarding Basin | | County of Orange | Orange | Tributary Marshburn Chan | 1998 | 282 | South Coast |
| Olive Hills Reservoir | Reservoir | | City of Anaheim | Orange | Offstream | 1962 | 220 | South Coast |
| Orange County Reservoir | Reservoir | | Metropolitan Water District | Orange | Tributary Fullerton Creek | 1941 | 217 | South Coast |
| Orchard Estates Retarding Basin | Retarding Basin | | County of Orange | Orange | Tributary Rattlesnake Canyon | 1999 | 138 | South Coast |
| Pacific Ocean Dam | Dam | | Unknown | Orange | Unknown | Unknown | Unknown | South Coast |
| Palisades Reservoir Dam | Dam | Palisades Reservoir | South Coast Water District | Orange | Tributary Prima Deshecha | 1963 | 147 | South Coast |
| Peters Canyon Dam | Dam | Peters Canyon Reservoir | County of Orange | Orange | Peters Canyon | 1932 | 1,090 | South Coast |
| Portola Dam | Dam | | Santa Margarita Water District | Orange | Canada Gobernadora | 1980 | 586 | South Coast |
| Rattlesnake Canyon Dam | Dam | Rattlesnake Reservoir | Irvine Ranch Water District | Orange | Rattlesnake Creek | 1959 | 1,480 | South Coast |
| Robinson Ranch | Reservoir | | William Lyon Community Inc. | Orange | Dove Creek | Unknown | 43 | South Coast |
| Rossmoor No. 1 Dam | Dam | | El Toro Water District | Orange | Tributary San Diego Creek | 1964 | 43 | South Coast |
| Rossmoor Retarding Basin | Retarding Basin | | El Toro Water District | Orange | Los Alamitos Channel | 2002 | 175 | South Coast |
| Round Canyon Retarding Basin | Retarding Basin | | County of Orange | Orange | Round Canyon Wash | 1994 | 286 | South Coast |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| San Joaquin Reservoir | Reservoir | | Irvine Ranch Water District | Orange | Tributary Bonita Creek | 1966 | 3,036 | South Coast |
| Sand Canyon Dam | Dam | Sand Canyon Reservoir | Irvine Ranch Water District | Orange | Sand Canyon | 1912 | 960 | South Coast |
| Santiago Creek Dam | Dam | Lake Irvine | Serrano Water District and Irvine Ranch Water District | Orange | Santiago Creek | 1933 | 25,000 | South Coast |
| Sulphur Creek Dam | Dam | Sulphur Creek Reservoir | County of Orange | Orange | Sulphur Creek | 1966 | 520 | South Coast |
| Syphon Canyon Dam | Dam | Syphon Canyon Reservoir | The Irvine Company | Orange | Tributary Newport Bay | 1949 | 500 | South Coast |
| Trabuco Creek | Reservoir | | Trabuco Canyon Water District | Orange | Tributary Dove Creek | 1984 | 138 | South Coast |
| Trabuco Retarding Basin | Retarding Basin | | County of Orange | Orange | San Diego Creek | 1996 | 390 | South Coast |
| Trampas Canyon Dam | Dam | | Oglebay Norton Ind. Sands | Orange | Trampas Canyon | 1975 | 5,700 | South Coast |
| Upper Oso Dam | Dam | Upper Oso Reservoir | Santa Margarita Water District | Orange | Oso Creek | 1979 | 3,700 | South Coast |
| Veeh Dam | Dam | Veeh Reservoir | Lake Hills Community Church | Orange | Tributary San Diego Creek | 1936 | 185 | South Coast |
| Villa Park Dam | Dam | | County of Orange | Orange | Santiago Creek | 1963 | 15,600 | South Coast |
| Walnut Canyon Reservoir | Reservoir | | City of Anaheim | Orange | Walnut Canyon | 1968 | 2,570 | South Coast |
| Yorba Reservoir | Reservoir | Yorba Linda | County of Orange | Orange | Tributary Santa Ana River | 1907 | 1200 | South Coast |
| 1001 Ranch Drain Weir | Weir | 1001 Ranch Drain | Unknown | Riverside | Unknown | Unknown | Unknown | South Coast |
| 1001 Ranch Drain West Tributary Weir | Weir | 1001 Ranch Drain West Tributary | Unknown | Riverside | Unknown | Unknown | Unknown | South Coast |
| Alessandro Dam | Dam | | Riverside County Flood Control and Water Conservation District | Riverside | Alessandro Creek | 1956 | 370 | South Coast |
| Box Springs Dam | Dam | Box Springs Reservoir | Riverside County Flood Control and Water Conservation District | Riverside | Box Springs River | 1960 | 400 | South Coast |
| Box Springs Dam | Dam | | Riverside County Flood Control and Water Conservation District | Riverside | Box Springs Creek | 1960 | 405 | South Coast |
| Cajalco Creek Dam | Dam | | Metropolitan Water District | Riverside | Cajalco Creek | 2001 | 889 | South Coast |
| Declez Retention | Retention Basin | | San Bernardino County Flood Control District | Riverside | Tributary San Sevaine Creek | 1984 | 331 | South Coast |
| Diamond Valley Lake | Reservoir | | Metropolitan Water District | Riverside | Domenigoni Valley Creek | 2000 | 800,000 | South Coast |
| Diamond Valley Lake Forebay | Reservoir | | Metropolitan Water District | Riverside | Domenigoni Valley Canyon | 1999 | 500 | South Coast |
| Dunn Ranch Dam | Dam | | Agri-Empire, A California Corporation | Riverside | Tributary Hamilton Creek | 1987 | 90 | South Coast |
| El Casco Dam | Dam | | Riverside Land Conservancy | Riverside | San Timoteo Creek | 1879 | 143 | South Coast |
| Fairmount Park Dam | Dam | Evans Lake | City of Riverside | Riverside | Tributary Santa Ana River | 1923 | 200 | South Coast |
| Foster Dam | Dam | | Idyllwild Water District | Riverside | Lily Creek | 1945 | 56 | South Coast |
| Goodhart Canyon Detention Basin | Detention Basin | | Metropolitan Water District | Riverside | Goodhart Canyon | 1999 | 1,026 | South Coast |
| Harrison Street Dam | Dam | | Riverside County Flood Control and Water Conservation District | Riverside | Harrison Creek | 1954 | 208 | South Coast |
| Henry J Mills Dam | Dam | | Metropolitan Water District | Riverside | Offstream | 1979 | 83 | South Coast |
| Henry J Mills No. 2 Dam | Dam | | Metropolitan Water District | Riverside | Offstream | 1996 | 92 | South Coast |
| HJ Mills Reclamation Dam | Dam | | Metropolitan Water District | Riverside | Offstream | 1996 | 98 | South Coast |
| Jurupa Basin | Reservoir | | Riverside County Flood Control and Water Conservation District | Riverside | Jurupa Wash | 1983 | 167 | South Coast |
| Lake Elsinore Weir | Weir | | Unknown | Riverside | Unknown | Unknown | Unknown | South Coast |
| Lake Hemet Dam | Dam | Lake Hemet | Lake Hemet Municipal Water District | Riverside | Tributary San Jacinto River | 1895 | 14,000 | South Coast |
| Lakeview Dam | Dam | | Riverside County Flood Control and Water Conservation District | Riverside | Tributary San Jacinto River | 1994 | 530 | South Coast |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Lee Lake Dam | Dam | | Elsinore Valley Municipal Water District | Riverside | Temescal Creek | 1919 | 1,100 | South Coast |
| Mabey Canyon Dam | Dam | | Riverside County Flood Control and Water Conservation District | Riverside | Mabey Creek | 1974 | 68 | South Coast |
| Main Street Channel Debris Dam Crest | Dam | | Unknown | Riverside | Unknown | Unknown | Unknown | South Coast |
| Mary Street | Detention Basin | | Riverside County Flood Control and Water Conservation District | Riverside | Alessandro Wash | 1981 | 320 | South Coast |
| Mathews Dam | Dam | Lake Mathews | Metropolitan Water District of Southern California | Riverside | Tributary Cajalco Creek | 1938 | 182,000 | South Coast |
| Metz Road Debris Basin | Debris Basin | | Riverside County Flood Control and Water Conservation District | Riverside | Tributary San Jacinto River | 1981 | 88 | South Coast |
| Mockingbird Canyon Reservoir | Reservoir | | City of Riverside | Riverside | Mockingbird Canyon | 1914 | 1,250 | South Coast |
| Oak Street Dam | Dam | Oak Street Creek Reservoir | Riverside County Flood Control and Water Conservation District | Riverside | Oak Street Creek | 1979 | 138 | South Coast |
| Perris Dam | Dam | Perris Reservoir | California Department of Water Resources | Riverside | Bernasconi Pass | 1973 | 131,452 | South Coast |
| Pigeon Pass Reservoir | Reservoir | Lake Poorman | Riverside County Flood Control and Water Conservation District | Riverside | Pigeon Pass | 1958 | 900 | South Coast |
| Prado Dam | Dam | Prado Reservoir | USACE Los Angeles District | Riverside | Santa Ana River | 1941 | 295,581 | South Coast |
| Prenda Dam | Dam | | Riverside County Flood Control and Water Conservation District | Riverside | Prenda Creek | 1954 | 192 | South Coast |
| Quail Valley Dam | Dam | | Forecast Homes | Riverside | Tributary San Jacinto River | 1959 | 103 | South Coast |
| Railroad Canyon Dam | Dam | Canyon Lake | Elsinore Valley Municipal Water District | Riverside | San Jacinto River | 1928 | 11586 | South Coast |
| San Jacinto Dam | Dam | San Jacinto Reservoir | Unknown | Riverside | Offstream storage for San Diego Aqueduct | Unknown | Unknown | South Coast |
| San Jacinto River | Weir | | Unknown | Riverside | Unknown | Unknown | Unknown | South Coast |
| Skinner Clearwell Dam | Dam | Robert A Skinner Reservoir | Metropolitan Water District | Riverside | Tucalota Creek | 1973 | 43,800 | South Coast |
| Sunnymead Ranch | Reservoir | | Sunnymead Ranch Community Association | Riverside | Reche Canyon | 1985 | 400 | South Coast |
| Sycamore Dam | Dam | | Riverside County Flood Control and Water Conservation District | Riverside | Sycamore Canyon | 1956 | 860 | South Coast |
| Vail Dam | Dam | Vail Lake | Rancho California Water District | Riverside | Temecula Creek | 1949 | 51,000 | South Coast |
| Woodcrest Dam | Dam | | Riverside County Flood Control and Water Conservation District | Riverside | Woodcrest Creek | 1954 | 420 | South Coast |
| Alta Loma Basin No. 1 | Reservoir | | Unknown | San Bernardino | Alta Loma Channel | 1964 | 70 | South Coast |
| Alta Loma Basin No. 2 | Reservoir | | San Bernardino County Department of Transportation and Flood | San Bernardino | Alta Loma Channel | 1971 | 85 | South Coast |
| Arnold Reservoir | Reservoir | | San Bernardino County Department of Transportation and Flood | San Bernardino | Unknown | Unknown | Unknown | South Coast |
| Bear Valley Dam | Dam | Big bear Lake | Unknown | San Bernardino | Bear Creek | 1911 | 74,000 | South Coast |
| Cedar Lake Dam | Dam | | Big Bear Municipal Water District | San Bernardino | Talmadge Creek | 1928 | 30 | South Coast |
| Chino Ranch No. 1 Dam | Dam | | First Congregational Church of Los Angeles | San Bernardino | Tonner Canyon Creek | 1918 | 137 | South Coast |
| Crafton Reservoir | Reservoir | | City of Industry Urban Development Agency | San Bernardino | Tributary Yucaipa Creek | 2001 | 130 | South Coast |
| Cucamonga Creek Debris Basin | Debris Basin | | California Department of Water Resources | San Bernardino | Cucamonga Creek | 1980 | 355 | South Coast |
| Day Creek Debris Basin | Debris Basin | | San Bernardino County Department of Transportation and Flood | San Bernardino | Day Creek | 1988 | 140 | South Coast |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Deer Canyon Debris Basin | Debris Basin | | San Bernardino County Department of Transportation and Flood | San Bernardino | Deer Creek | 1980 | 24 | South Coast |
| Demens Creek Debris Basin | Debris Basin | | San Bernardino County Department of Transportation and Flood | San Bernardino | Demens Creek | 1980 | 35 | South Coast |
| Desilting Basin 6 Dam | Dam | | San Bernardino County Department of Transportation and Flood | San Bernardino | Cucamonga Creek | 1937 | 250 | South Coast |
| Devil Canyon Dam | Dam | | San Bernardino County Flood Control District | San Bernardino | Offstream | 1995 | 980 | South Coast |
| Devils Canyon Dike No. 1 | Dike | | California Department of Water Resources | San Bernardino | Devils Canyon Dike 1 | 1934 | 79 | South Coast |
| Glen Martin Dam | Dam | Shadow Lake | San Bernardino County Flood Control District | San Bernardino | Mountain Home Creek | 1950 | 33 | South Coast |
| Hickory Basin | Reservoir | | The Robinson Living Trust | San Bernardino | W Fontana Channel | 2001 | 220 | South Coast |
| Jurupa Basin | Reservoir | | San Bernardino County Department of Transportation and Flood | San Bernardino | San Sevaine Creek | 2001 | 1,680 | South Coast |
| Little Mountain Dam | Dam | | San Bernardino County Department of Transportation and Flood | San Bernardino | Devil Can Creek | 1958 | 150 | South Coast |
| Little Sand Canyon Dam | Dam | Little Sand Creek | San Bernardino County Department of Transportation and Flood | San Bernardino | Unknown | Unknown | Unknown | South Coast |
| Mineral Hot Springs Lake Dam | Dam | | Unknown | San Bernardino | Tributary East Twin Creek | 1967 | 37 | South Coast |
| Perris Hill Reservoir Dam | Dam | Perris Hill Reservoir | Campus Crusade For Christ International | San Bernardino | Offstream | 1962 | 31 | South Coast |
| Rancho Cielito Dam | Dam | Lake Los Serranos | City of San Bernardino | San Bernardino | Tributary Chino Creek | 1912 | 110 | South Coast |
| San Antonio Dam | Dam | San Antonio Reservoir | Rolling Ridge Ranch | San Bernardino | San Antonio Creek | 1956 | 11,880 | South Coast |
| San Sevaine Basin No. 5 Dam | Dam | | San Bernardino County Department of Transportation and Flood | San Bernardino | San Sevaine Creek | 2004 | 2,765 | South Coast |
| Seven Oaks Dam | Dam | | San Bernardino County Department of Transportation and Flood | San Bernardino | Santa Ana River | 1999 | 145,600 | South Coast |
| Small Canyon Dam | Dam | | San Bernardino County Department of Transportation and Flood | San Bernardino | Tributary City Creek | 1957 | 20 | South Coast |
| Wiggins No. 2 Dam | Dam | | San Bernardino County Flood Control District | San Bernardino | Devil Creek | 1957 | 146 | South Coast |
| Yucaipa No. 1 Dam | Dam | | San Bernardino Valley Municipal Water District | San Bernardino | Tributary Yucaipa Creek | 1978 | 92 | South Coast |
| Yucaipa No. 2 Dam | Dam | | San Bernardino Valley Municipal Water District | San Bernardino | Tributary Yucaipa Creek | 1978 | 100 | South Coast |
| Yucaipa No. 3 Dam | Dam | | San Bernardino Valley Municipal Water District | San Bernardino | Tributary Yucaipa Creek | 1978 | 32 | South Coast |
| 4S Ranch Dam | Dam | 4S Ranch Reservoir | County of San Diego | San Diego | Tributary San Dieguito River | 1990 | 173 | South Coast |
| 4-S Ranch Reclamation Reservoir | Reservoir | | Thomas Ralphs | San Diego | Artesian Creek | 2000 | 410 | South Coast |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Agua Tibia Dam | Dam | | Agua Tibia Ranch | San Diego | Offstream | 1947 | 62 | South Coast |
| Barrett Dam | Dam | Barrett Lake | City of San Diego | San Diego | Cottonwood Creek | 1922 | 44,755 | South Coast |
| Bernardo Reservoir Dam | Dam | Bernardo Reservoir | City of San Diego | San Diego | Offstream | 1964 | 30 | South Coast |
| Black Mountain Water Tank | Reservoir | | City of San Diego | San Diego | Offstream | 2002 | 77 | South Coast |
| Blossom Valley Reservoir Dam | Dam | Blossom Valley Reservoir | Padre Dam Municipal Water District | San Diego | Offstream | 1962 | 22 | South Coast |
| Bonita Long Canyon Dam | Dam | | City of Chula Vista | San Diego | Tributary Sweetwater River | 1986 | 49 | South Coast |
| Bressi Dam | Dam | | Lennar Homes | San Diego | Tributary San Marcos Creek | 1942 | 63 | South Coast |
| Buena Creek Private Dam | Dam | | Unknown | San Diego | Unknown | Unknown | Unknown | South Coast |
| Calavera Dam | Dam | | Carlsbad Municipal Water District | San Diego | Calavera Creek | 1940 | 520 | South Coast |
| Carmel Valley Creek Drop Structure Dam | Dam | | Unknown | San Diego | Unknown | Unknown | Unknown | South Coast |
| Case Springs Dam | Dam | Case Springs Lake | Department of Defense, U.S. Marine Corps | San Diego | Tributary San Onofre Creek | 1900 | 67 | South Coast |
| Chambers Dam | Dam | Los Penasquitas Creek | Unknown | San Diego | Unknown | Unknown | Unknown | South Coast |
| Chet Harritt Dam | Dam | Lake Jennings | Helix Water District | San Diego | Quail Canyon Creek | 1962 | 9,790 | South Coast |
| Chollas Dam | Dam | Chollas Reservoir | City of San Diego | San Diego | Tributary Chollas Creek | 1901 | 310 | South Coast |
| Corte Madera Dam | Dam | | Rancho Corte Madera Inc | San Diego | Tributary Pine Valley Creek | 1919 | 325 | South Coast |
| Cuyamaca Dam | Dam | | Helix Water District | San Diego | Boulder Creek | 1887 | 11,740 | South Coast |
| Dixon Dam | Dam | | City of Escondido | San Diego | Tributary Escondido Creek | 1970 | 2,500 | South Coast |
| Earl Thomas Reservoir Dam | Dam | Lake Murray | City of San Diego | San Diego | Offstream | 1958 | 107 | South Coast |
| Eastlake Reservoir | Reservoir | | Eastlake I Association | San Diego | Proctor Valley Canyon | 1986 | 77 | South Coast |
| El Capitan Dam | Dam | El Capitan Lake | City of San Diego | San Diego | San Diego River | 1934 | 112,800 | South Coast |
| Fairbanks Dam | Dam | | Fairbanks Ranch Association | San Diego | Tributary San Dieguito River | 1927 | 100 | South Coast |
| Henry Jr. Dam | Dam | | Mrs. Charlotte Frye | San Diego | Skye Valley | 1929 | 196 | South Coast |
| Henshaw Dam | Dam | Lake Henshaw | Vista Irrigation District | San Diego | San Luis Rey River | 1923 | 50,000 | South Coast |
| Hodges Dam | Dam | Lake Hodges | City of San Diego | San Diego | San Dieguito River | 1918 | 37,700 | South Coast |
| Incline Dam | Dam | | Calmat | San Diego | Unknown | Unknown | 210 | South Coast |
| Lake Cuyamaca Dam | Dam | Lake Cuyamaca | Lake Cuyamaca Recreation and Park District | San Diego | Boulder Creek | 1968 | 1,000 | South Coast |
| Lake Loveland Dam | Dam | Lake Loveland Reservoir | Sweetwater Authority | San Diego | Sweetwater River | 1945 | 25,400 | South Coast |
| Lake O'Neill Dam | Dam | Lake O'Neill | Department of Defense, U.S. Marine Corps | San Diego | Santa Margarita River Offstream | 1883 | 1,320 | South Coast |
| Lake Ramona | Reservoir | | Ramona Municipal Water District | San Diego | Green Valley Road Creek | 1988 | 12,200 | South Coast |
| Lake Wohlford Dam | Dam | Lake Wohlford Reservoir | City of Escondido | San Diego | Escondido Creek | 1924 | 6,950 | South Coast |
| Lower Stehly Dam | Dam | | Nicholas J.C. Stehly | San Diego | Tributary Keys Creek | Unknown | 145 | South Coast |
| Maerkle Reservoir | Reservoir | | Carlsbad Municipal Water District | San Diego | Tributary Aqua Hedionda | 1963 | 600 | South Coast |
| Mary Jo Dam | Dam | | Unknown | San Diego | Unknown | Unknown | Unknown | South Coast |
| Matthews Dam | Dam | | Pete Prestininzi | San Diego | Tributary De Luz Creek | 1967 | 52 | South Coast |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Melrose Avenue Dam | Dam | | Rancho Carrillo Homeowners Association | San Diego | Tributary San Marcos Creek | 1998 | 52 | South Coast |
| Miramar Dam | Dam | Lake Miramar | City of San Diego | San Diego | Big Surr Creek | 1960 | 7,250 | South Coast |
| Morena Dam | Dam | Morena Reservoir | City of San Diego | San Diego | Cottonwood Creek | 1912 | 50206 | South Coast |
| Mount Helix Reservoir | Reservoir | | Unknown | San Diego | Unknown | Unknown | Unknown | South Coast |
| Mount Woodson Dam | Dam | | Ramona Municipal Water District | San Diego | Offstream | 1958 | 30 | South Coast |
| Murray Reservoir | Reservoir | | City of San Diego | San Diego | Chaparral | 1918 | 4,818 | South Coast |
| Olivenhain Dam | Dam | Olivenhain Reservoir | San Diego County Water Authority | San Diego | Tributary Escondido Creek | 2003 | 24,900 | South Coast |
| Palo Verde Dam | Dam | Palos Verde Reservoir | Palo Verde Ranch Homeowners | San Diego | Sweetwater River | 1970 | 730 | South Coast |
| Pilgrim Creek Dam | Dam | Pilgrim Creek Lake | Department of Defense, U.S. Marine Corps | San Diego | Pilgrim Creek | 1973 | 50 | South Coast |
| Poway Dam | Dam | Lake Poway | City of Poway | San Diego | Warren Canyon | 1971 | 3,300 | South Coast |
| Pulgas Lake Dam | Dam | Pulgas Lake | Department of Defense, U.S. Marine Corps | San Diego | Piedra Dr Lubre Creek | 1953 | 125 | South Coast |
| Red Mountain Reservoir Dam | Dam | Red Mountain Reservoir | Fallbrook Public Utility District | San Diego | Reche Creek | 1985 | 1,350 | South Coast |
| River Bottom Reservoir | Reservoir | | Unknown | San Diego | Unknown | Unknown | Unknown | South Coast |
| San Dieguito Dam | Dam | San Dieguito Reservoir | Santa Fe Irrigation and San Dieguito Water District | San Diego | Tributary Escondido Creek | 1918 | 883 | South Coast |
| San Marcos Dam | Dam | | Vallecitos Water District | San Diego | Tributary San Marcos Creek | 1958 | 320 | South Coast |
| San Marcos Dam | Dam | Lake San Marcos | Citizens Development Corporation | San Diego | San Marcos Creek | 1946 | 480 | South Coast |
| San Vicente Dam | Dam | San Vicente Reservoir | City of San Diego | San Diego | San Vicente Creek | 1943 | 90,230 | South Coast |
| San Vicente Storage Pond 1 | Reservoir | | Ramona Municipal Water District | San Diego | Offstream | 1991 | 137 | South Coast |
| San Vicente Storage Pond 3 | Reservoir | | Ramona Municipal Water District | San Diego | Offstream | 2002 | 69 | South Coast |
| Santa Fe Seasonal Storage Reservoir | Reservoir | | Santa Fe Community Services District | San Diego | Tributary San Dieguito River | Proposed | 132 | South Coast |
| Santa Maria Creek | Reservoir | | Ramona Municipal Water District | San Diego | Offstream | 1995 | 217 | South Coast |
| Savage Dam | Dam | Lower Otay Lake Reservoir | City of San Diego | San Diego | Otay River | 1919 | 49,510 | South Coast |
| Squires Dam | Dam | | Unknown | San Diego | Unknown | Unknown | Unknown | South Coast |
| Stanley A. Mahr Reservoir | Reservoir | | Vallecitos Water District | San Diego | Tributary Encinitas Creek | 1981 | 166 | South Coast |
| Sutherland Dam | Dam | Lake Sutherland | City of San Diego | San Diego | Santa Ysabel Creek | 1954 | 29,000 | South Coast |
| Sweetwater Main Dam | Dam | Sweetwater Reservoir | Sweetwater Authority | San Diego | Sweetwater River | 1888 | 27,700 | South Coast |
| Turner Dam | Dam | Turner Reservoir | Valley Center Municipal Water District | San Diego | Moosa Canyon | 1971 | 2000 | South Coast |
| Twin Oaks Valley Creek Drop Structure No. 1 Dam | Dam | | Unknown | San Diego | Unknown | Unknown | Unknown | South Coast |
| Twin Oaks Valley Creek Drop Structure No. Dam | Dam | | Unknown | San Diego | Unknown | Unknown | Unknown | South Coast |
| Twin Oaks Valley Creek Drop Structure No. 3 Dam | Dam | | Unknown | San Diego | Unknown | Unknown | Unknown | South Coast |
| Twin Oaks Valley Creek Drop Structure No. 4 Dam | Dam | | Unknown | San Diego | Unknown | Unknown | Unknown | South Coast |
| Twin Oaks Valley Creek Drop Structure No. 5 Dam | Dam | | Unknown | San Diego | Unknown | Unknown | Unknown | South Coast |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Twin Oaks Valley Creek Drop Structure No. 6 Dam | Dam | | Unknown | San Diego | Unknown | Unknown | Unknown | South Coast |
| Twin Oaks Valley Creek Drop Structure No. 7 Dam | Dam | | Unknown | San Diego | Unknown | Unknown | Unknown | South Coast |
| Twin Oaks Valley Creek Drop Structure No. 8 Dam | Dam | | Unknown | San Diego | Unknown | Unknown | Unknown | South Coast |
| Twin Oaks Valley Creek Drop Structure No. 9 | Weir | | Unknown | San Diego | Unknown | Unknown | Unknown | South Coast |
| Upper 4 S Dam | Dam | None | Thomas Ralphs | San Diego | Lusardi Creek | 1927 | 63 | South Coast |
| Upper Otay Reservoir | Reservoir | | City of San Diego | San Diego | Proctor Valley Creek | 1901 | 2,825 | South Coast |
| Upper Stehly Dam | Dam | | Nicholas J.C. Stehly | San Diego | Tributary Keys Creek | 1999 | 229 | South Coast |
| US Silica FW Ponds | Reservoir | | City of Oceanside | San Diego | San Luis Rey River | 1975 | 170 | South Coast |
| Witch Creek Dam | Dam | | Unknown | San Diego | Witch Creek Stream | Unknown | Unknown | South Coast |
| Arundell Barranca Dam | Dam | | Ventura County Watershed Protection District | Ventura | Arundell Barranca | 1996 | 155 | South Coast |
| Casitas Dam | Dam | Lake Casitas | Department of Interior, Bureau of Reclamation | Ventura | Coyote Creek | 1959 | 287,000 | South Coast |
| Casitas Saddle Dike | Dike | Lake Casitas | Department of Interior, Bureau of Reclamation | Ventura | Coyote Creek Offstream | 1959 | 287,000 | South Coast |
| Ferro Debris Basin | Debris Basin | | Ventura County Watershed Protection District | Ventura | Tributary Beardsley Wash | 1986 | 24 | South Coast |
| Lake Eleanor Dam | Dam | Lake Eleanor | Conejo Recreation and Park District | Ventura | Eleanor Creek | 1881 | 104 | South Coast |
| Lake Sherwood Dam | Dam | Lake Sherwood | Sherwood Development Co. | Ventura | Potrero Valley Creek | 1904 | 2,600 | South Coast |
| Lang Creek Detention Basin | Detention Basin | | Ventura County Watershed Protection District | Ventura | Lang Creek | Proposed | 263 | South Coast |
| Las Llajas Dam | Dam | | Ventura County Watershed Protection District | Ventura | Las Llajas Canyon | 1981 | 1,250 | South Coast |
| Los Robles Diversion Dam | Dam | Robles Diversion Dam | Bureau of Reclamation | Ventura | Ventura River | Unknown | Unknown | South Coast |
| Matilija Dam | Dam | | Ventura County Watershed Protection District | Ventura | Matilija Creek | 1949 | 1,800 | South Coast |
| Quail Reservoir | Reservoir | Peace Valley Pipeline Intake | California Department of Water Resources | Ventura | West Branch CA Aqueduct | 1981 | 7,770 | South Coast |
| Runkle Dam | Dam | Runkle Reservoir | Ventura County Watershed Protection District | Ventura | Runkle Canyon | 1949 | 100 | South Coast |
| Santa Felicia Dam | Dam | Lake Piru | United Water Conservation District | Ventura | Piru Creek | 1955 | 100,000 | South Coast |
| Senior Canyon Dam | Dam | Senior Canyon Reservoir | Senior Canyon Mutual Water Co. | Ventura | San Antonio Creek | 1964 | 73 | South Coast |
| Sinaloa Lake Dam | Dam | Sinaloa Lake | Sinaloa Lake Owners Association Inc | Ventura | Tributary Arroyo Simi | 1925 | 205 | South Coast |
| Stewart Canyon Debris Basin | Debris Basin | | Ventura County Watershed Protection District | Ventura | Tributary San Antonio Creek | 1963 | 67 | South Coast |
| Sycamore Canyon Dam | Dam | | Ventura County Watershed Protection District | Ventura | Sycamore Canyon River | 1981 | 890 | South Coast |
| Wood Ranch Reservoir | Reservoir | Bard Lake | Calleguas Municipal Water District | Ventura | Tributary Arroyo Simi | 1965 | 11,000 | South Coast |
| Big Pine Creek No. 2 Dam | Dam | Second Lake | City of Los Angeles Department of Water and Power | Inyo | Big Pine Creek | Unknown | 1,071 | South Lahontan |
| Bishop Creek Intake No. 2 Dam | Dam | | Southern California Edison Co. | Inyo | Middle Fork Bishop Creek | 1908 | 78 | South Lahontan |
| Bishop Creek Intake No. 4 Dam | Dam | | Southern California Edison Co. | Inyo | Bishop Creek | 1908 | 25 | South Lahontan |
| Bishop Creek Intake No. 6 Dam | Dam | | Southern California Edison Co. | Inyo | Bishop Creek | 1908 | 15 | South Lahontan |
| Haiwee Dam | Dam | Haiwee Reservoir | Southern California Edison Co. | Inyo | Rose Valley | 1913 | 46,600 | South Lahontan |
| Hillside Dam | Dam | South Lake | Southern California Edison Co. | Inyo | South Fork Bishop Creek | 1910 | 12,883 | South Lahontan |
| Longley Dam | Dam | Longley Lake | Southern California Edison Co. | Inyo | Mc Gee Creek | 1910 | 178 | South Lahontan |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Pleasant Valley Dam | Dam | Pleasant Valley Reservoir | Southern California Edison Co. | Inyo | Owens River | 1957 | 3,825 | South Lahontan |
| Sabrina Dam | Dam | Lake Sabrina | Southern California Edison Co. | Inyo | Middle Fork Bishop Creek | 1908 | 8,376 | South Lahontan |
| Tailings Pond No. 1 | Reservoir | | Southern California Edison Co. | Inyo | Unknown | Unknown | 5,010 | South Lahontan |
| Tailings Pond No. 2 | Reservoir | | Southern California Edison Co. | Inyo | Unknown | Unknown | 1,720 | South Lahontan |
| Tailings Pond No. 3 | Reservoir | | Southern California Edison Co. | Inyo | Unknown | Unknown | 382 | South Lahontan |
| Tailings Pond No. 4 | Reservoir | | Southern California Edison Co. | Inyo | Unknown | Unknown | 995 | South Lahontan |
| Tinemaha Dam | Dam | Tinemaha Reservoir | Southern California Edison Co. | Inyo | Owens River | 1928 | 16,405 | South Lahontan |
| BAP Ponds 1,2,3,4 | Reservoir | | Southern California Edison Co. | Kern | Offstream | 2003 | 1,986 | South Lahontan |
| Blackburn Dam | Dam | | Southern California Edison Co. | Kern | Blackburn Creek | 1991 | 625 | South Lahontan |
| Borax Solar Evaporation Ponds | Reservoir | | Southern California Edison Co. | Kern | Tributary Rogers Dry Lake | 1984 | 242 | South Lahontan |
| Boron Tails PD 5 Dam | Dam | | Southern California Edison Co. | Kern | Tributary Rogers Dry Lake | 1976 | 4,887 | South Lahontan |
| Boron Tails Pond 6 Dam | Dam | | Southern California Edison Co. | Kern | Tributary Rogers Dry Lake | 1980 | 2,235 | South Lahontan |
| Boron Tails Pond Dam | Dam | | Southern California Edison Co. | Kern | Tributary Rogers Dry Lake | 1975 | 1,480 | South Lahontan |
| Amargosa Creek Dam | Dam | | Southern California Edison Co. | Los Angeles | Amargosa Creek | 1998 | 1,187 | South Lahontan |
| Fairmont No. 2 Dam | Dam | Fairmont No. 2 Reservoir | Southern California Edison Co. | Los Angeles | Tributary Antelope Valley Creek | 1982 | 493 | South Lahontan |
| Fairmont Dam | Dam | Fairmont Reservoir | Southern California Edison Co. | Los Angeles | Antelope Valley | 1912 | 7,507 | South Lahontan |
| Harold Reservoir Dam | Dam | Harold Reservoir | Southern California Edison Co. | Los Angeles | Tributary Antelope Valley Creek | 1891 | 3,870 | South Lahontan |
| Littlerock Dam | Dam | Littlerock Reservoir | Southern California Edison Co. | Los Angeles | Littlerock Creek | 1924 | 4,600 | South Lahontan |
| Pearblossom Spilling Basin Dam | Dam | | Southern California Edison Co. | Los Angeles | Offstream | 1970 | 106 | South Lahontan |
| Adobe Reservoir | Reservoir | Fairmont No. 2 Dam | Southern California Edison Co. | Mono | Antelope Valley | 1912 | Unknown | South Lahontan |
| Agnew Lake Dam | Dam | Agnew Lake Reservoir | Southern California Edison Co. | Mono | Rush Creek | 1916 | 810 | South Lahontan |
| Gem Lake Dam | Dam | | Southern California Edison Co. | Mono | Rush Creek | 1917 | 17,228 | South Lahontan |
| Grant Lake Dam | Dam | Grant Lake | Southern California Edison Co. | Mono | Rush Creek | 1940 | 47,525 | South Lahontan |
| Long Valley Dam | Dam | Lake Crowley | Southern California Edison Co. | Mono | Owens River | 1941 | 183,465 | South Lahontan |
| Lundy Lake Dam | Dam | Lundy Lake | Southern California Edison Co. | Mono | Mill Creek | 1911 | 4,113 | South Lahontan |
| Rhinedollar Dam | Dam | Ellery Lake | Southern California Edison Co. | Mono | Leevining Creek | 1927 | 490 | South Lahontan |
| Rush Creek Meadows Dam | Dam | Waugh Lake | Southern California Edison Co. | Mono | Rush Creek | 1925 | 5,277 | South Lahontan |
| Saddlebag Dam | Dam | Saddlebag Lake | Southern California Edison Co. | Mono | Leevining Creek | 1921 | 9,789 | South Lahontan |
| Tioga Lake Auxiliary | Auxiliary | | Southern California Edison Co. | Mono | Glacier Creek | 1928 | 1,250 | South Lahontan |
| Tioga Lake Dam | Dam | Tioga Lake | Southern California Edison Co. | Mono | Leevining Creek | 1928 | 1,254 | South Lahontan |
| Upper Gorge Dam | Dam | | City of Los Angeles Department of Water and Power | Mono | Owens River | 1953 | 26 | South Lahontan |
| Walker Lake | Reservoir | | City of Los Angeles | Mono | Walker Creek | 1880 | 540 | South Lahontan |
| Cedar Springs Dam | Dam | | California Department of Water Resources | San Bernardino | West Fork Mojave River | 1971 | 78,000 | South Lahontan |
| Grass Valley Dam | Dam | Grass Valley Reservoir | Arrowhead Lake Association | San Bernardino | Grass Valley Creek | 1964 | 243 | South Lahontan |
| Green Valley Lake Dam | Dam | | Green Valley Mutual Water Co. | San Bernardino | Green Valley Creek | 1925 | 250 | South Lahontan |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Gregory, Lake Dam | Dam | | San Bernardino County Regional Park Division | San Bernardino | Houston Creek | 1938 | 2,100 | South Lahontan |
| Lake Arrowhead Dam | Dam | Lake Arrowhead Reservoir | Arrowhead Lake Association | San Bernardino | Little Bear Creek | 1922 | 48,000 | South Lahontan |
| Mojave Dam | Dam | Mojave Reservoir | USACE Los Angeles District | San Bernardino | West Fork Mojave River | 1971 | 179,400 | South Lahontan |
| Molycorp Tailings | Reservoir | | Molycorp Incorporated | San Bernardino | Offstream | 1967 | 1,140 | South Lahontan |
| New Lake Arrowhead Dam | Dam | Papoose Lake | County of San Bernardino | San Bernardino | Little Bear Creek | 1976 | 1,970 | South Lahontan |
| Alluvial Drain Detention Basin | Detention Basin | | Fresno Metropolitan Flood Control District | Fresno | Tributary Big Dry Creek | 1994 | 833 | Tulare Lake |
| Balch Afterbay Dam | Dam | | Pacific Gas and Electric Company | Fresno | North Fork Kings River | 1928 | 318 | Tulare Lake |
| Balch Diversion Dam | Dam | Black Rock Reservoir | Pacific Gas and Electric Company | Fresno | North Fork Kings River | 1927 | 1,295 | Tulare Lake |
| Big Dry Creek Dam | Dam | | Fresno Metropolitan Flood Control District | Fresno | Big Dry Creek and Dog Creek | 1948 | 30,200 | Tulare Lake |
| Cobbles Weir | Weir | Kings River | Unknown | Fresno | Unknown | Unknown | Unknown | Tulare Lake |
| Cole Slough Dam | Dam | | Unknown | Fresno | Unknown | Unknown | Unknown | Tulare Lake |
| Consolidated and Fresno Canals Weirs | Weir | Kings River | Unknown | Fresno | Unknown | Unknown | Unknown | Tulare Lake |
| Courtright Dam | Dam | Courtright Reservoir | Pacific Gas and Electric Company | Fresno | Helms Creek | 1958 | 123,300 | Tulare Lake |
| Dry Creek Dam | Dam | | Unknown | Fresno | Unknown | Unknown | Unknown | Tulare Lake |
| Fancher Creek Dam | Dam | | Fresno Metropolitan Flood Control District | Fresno | Fancher Creek and Hog Creek | 1991 | 9,600 | Tulare Lake |
| Fancher Creek Detention | Detention Basin | | Fresno Metropolitan Flood Control District | Fresno | Fancher Creek | 2006 | 1,891 | Tulare Lake |
| Giffen Reservoir Dam | Dam | Giffen Reservoir | Harris Farms Inc | Fresno | Tributary Holland Creek | 1971 | 900 | Tulare Lake |
| Gould Canal Weir | Weir | | Unknown | Fresno | Unknown | Unknown | Unknown | Tulare Lake |
| Grant Canal Dam | Dam | | Unknown | Fresno | Unknown | Unknown | Unknown | Tulare Lake |
| Hume Lake Dam | Dam | | Unknown | Fresno | Unknown | Unknown | Unknown | Tulare Lake |
| Last Chance Weir | Weir | | Last Chance Water Ditch Co. | Fresno | Kings River | 1919 | 50 | Tulare Lake |
| Mud Dam | Dam | Mud Reservoir | James Irrigation District | Fresno | Fresno Slough | 1919 | 304 | Tulare Lake |
| Murphy Slough Dam | Dam | | Unknown | Fresno | Unknown | Unknown | Unknown | Tulare Lake |
| Pine Flat Dam | Dam | Pine Flat Lake | USACE | Fresno | Kings River | 1954 | 1,000,000 | Tulare Lake |
| Pup Creek Detention Basin | Detention Basin | | USACE, Fresno Metropolitan Flood Control District | Fresno | Pup Creek | 1993 | 785 | Tulare Lake |
| Redbank Creek | Reservoir | | Unknown | Fresno | Unknown | Unknown | Unknown | Tulare Lake |
| Redbank Creek Tributary 3 | Reservoir | | Unknown | Fresno | Unknown | Unknown | Unknown | Tulare Lake |
| Redbank Creek Tributary 4 | Reservoir | | Unknown | Fresno | Unknown | Unknown | Unknown | Tulare Lake |
| Redbank Creek Tributary 5 | Reservoir | | Unknown | Fresno | Unknown | Unknown | Unknown | Tulare Lake |
| Redbank Dam | Dam | | Fresno Metropolitan Flood Control District | Fresno | Redbank Creek | 1962 | 1100 | Tulare Lake |
| Redbank Detention Basin | Detention Basin | | Fresno Metropolitan Flood Control District | Fresno | Redbank Creek | 1990 | 940 | Tulare Lake |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Reynolds Weir | Weir | | Laguna Irrigation District | Fresno | Tributary Kings River | 1928 | 260 | Tulare Lake |
| Sand Creek Dam | Dam | Sand Creek Reservoir | Tulare County Resources Management Agency | Fresno | Sand Creek | 1980 | 1,050 | Tulare Lake |
| Sequoia Lake Dam | Dam | Sequoia Lake | Y M C A Inc | Fresno | Mill Flat Creek | 1888 | 1,370 | Tulare Lake |
| Stinson Weir | Weir | | Stinson Canal and Irrigation Co | Fresno | Tributary Kings River | 1910 | 50 | Tulare Lake |
| Wishon Auxiliary No. 1 | Auxiliary | | Pacific Gas and Electric Company | Fresno | North Fork Kings River | 1958 | 129,000 | Tulare Lake |
| Wishon Reservoir | Reservoir | | Pacific Gas and Electric Company | Fresno | North Fork Kings River | 1958 | 118,000 | Tulare Lake |
| East Side Tailings Area Dam | Dam | | Excell-Mineral Co. | Inyo | Unknown | Unknown | 340 | Tulare Lake |
| Aerated Lagoon Dam | Dam | None | City of Bakersfield | Kern | Offstream | 1980 | 458 | Tulare Lake |
| Antelope Dam | Dam | | Tehachapi-Cummings Co Water District | Kern | Antelope Creek | 1987 | 764 | Tulare Lake |
| Arvin Edison Canal Diversion Structure | Weir | | Unknown | Kern | Unknown | Unknown | Unknown | Tulare Lake |
| Beardsley Weir | Weir | | Unknown | Kern | Unknown | Unknown | Unknown | Tulare Lake |
| Berrenda Mesa Dam | Dam | | Berrenda Mesa Water District | Kern | Unknown | 1967 | 180 | Tulare Lake |
| Big Four Ranch Dam | Dam | | Kern-Tulare Water District | Kern | Unknown | 1970 | 312 | Tulare Lake |
| Blackburn Stormwater Collection Facility Reservoir | Reservoir | | Natural Resources Conservation Service, Tehachapi County Water District | Kern | Blackburn Creek | 1990 | 710 | Tulare Lake |
| Buena Vista Dam | Dam | | J. G. Boswell & Co. | Kern | Offstream | 1890 | 205,000 | Tulare Lake |
| Buena Vista Dam | Dam | | Kern County Department of Parks and Recreation | Kern | Kern River | 1973 | 7,500 | Tulare Lake |
| California Aqueduct Dam | Dam | | Unknown | Kern | Unknown | Unknown | Unknown | Tulare Lake |
| Calloway Weir | Weir | Kern River | Unknown | Kern | Unknown | Unknown | Unknown | Tulare Lake |
| Diversion No. 1 Dam | Dam | Lake Isabella Tributary | Southern California Edison Co. | Kern | Kern River | 1906 | 150 | Tulare Lake |
| Irrigation Reservoir Dam | Dam | Irrigation Reservoir | City of Bakersfield | Kern | Offstream | 1980 | 5,200 | Tulare Lake |
| Isabella Dam | Dam | Isabella Lake | USACE | Kern | Kern River | 1953 | 568,000 | Tulare Lake |
| J C Jacobsen Dam | Dam | | Tehachapi-Cummings Co Water District | Kern | Tributary Chanac Creek | 1973 | 1,820 | Tulare Lake |
| Kern Island Canal | Weir | | Unknown | Kern | Unknown | Unknown | Unknown | Tulare Lake |
| Kern River County Park Dam | Dam | Ming, Lake | Kern County Department of Parks and Recreation | Kern | Tributary Kern River | 1959 | 790 | Tulare Lake |
| North East Tailings Area | Reservoir | | Excell-Mineral Co. | Kern | Unknown | Unknown | 75 | Tulare Lake |
| Rio Bravo Diversion Dam | Dam | | Olcese Water District | Kern | Kern River | 1989 | 63 | Tulare Lake |
| Tejon Storage 1 | Reservoir | | Tejon Ranch Co. | Kern | Tributary El Paso Creek | 1946 | 700 | Tulare Lake |
| Tejon Storage 2 | Reservoir | | Tejon Ranch Co. | Kern | Tributary Tejon Creek | 1956 | 860 | Tulare Lake |
| Walker Basin Creek Dam | Dam | | Unknown | Kern | Walker Basin Creek | Unknown | Unknown | Tulare Lake |
| West East Tailings Area | Reservoir | | Excell-Mineral Co. | Kern | Unknown | Unknown | 710 | Tulare Lake |
| Avenal EFFL STO Dam | Dam | | State Department of Corrections | Kings | Offstream | 1987 | 783 | Tulare Lake |
| Crescent Weir | Weir | | Crescent Canal Co. | Kings | Zalda Creek | 1933 | 50 | Tulare Lake |
| Empire Weir No. 1 | Weir | | Empire West Side Id | Kings | South Fork Kings River | 1906 | 50 | Tulare Lake |
| Empire Weir No. 2 | Weir | | Tulare Lake Basin Water Storage District | Kings | South Fork Kings River | 1938 | 480 | Tulare Lake |
| Island Weir | Weir | | Laguna Irrigation District | Kings | North Fork Kings River | 1926 | 230 | Tulare Lake |
| Lemoore Div Weir | Weir | | Lemoore Canal and Irrigation Co | Kings | Kings River | 1924 | 50 | Tulare Lake |
| Peoples Weir | Weir | | Peoples Ditch Co. | Kings | Kings River | 1936 | 120 | Tulare Lake |
| Bravo Lake Reservoir Dam | Reservoir | Bravo Lake Reservoir | Wutchumna Water Co. | Tulare | Wutchumna Ditch | 1980 | 3,427 | Tulare Lake |

**Table E-D-4. List of Dams and Reservoirs in California**

| Dam Name | Type of Structure | Reservoir Name | Owner | County | Stream | Year Built | Capacity (AF) | Hydrologic Region |
|---|---|---|---|---|---|---|---|---|
| Crystal Lake Dam | Dam | | Southern California Edison Co. | Tulare | East Fork Kaweah River | 1903 | 162 | Tulare Lake |
| Elk Bayou Dam | Dam | | Southern California Edison Co. | Tulare | Elk Bayou | 1903 | 60 | Tulare Lake |
| Graham Creek Dam | Dam | | Southern California Edison Co. | Tulare | Unknown | Unknown | Unknown | Tulare Lake |
| Kaweah River | Weir | | Southern California Edison Co. | Tulare | Unknown | Unknown | Unknown | Tulare Lake |
| Lady Franklin Lake Dam | Dam | | Southern California Edison Co. | Tulare | East Fork Kaweah River | 1905 | 467 | Tulare Lake |
| Larson Dam | Dam | | Southern California Edison Co. | Tulare | Tributary South Tule River | 1963 | 325 | Tulare Lake |
| Saint Johns River | Weir | | Southern California Edison Co. | Tulare | Unknown | Unknown | Unknown | Tulare Lake |
| Saint Johns River | Weir | | Southern California Edison Co. | Tulare | Unknown | Unknown | Unknown | Tulare Lake |
| Saint Johns River Dam | Dam | | Southern California Edison Co. | Tulare | Unknown | Unknown | Unknown | Tulare Lake |
| Success Dam | Dam | Success Lake | Southern California Edison Co. | Tulare | Tule River | 1961 | 82,300 | Tulare Lake |
| Terminus Dam | Dam | Lake Kaweah | Southern California Edison Co. | Tulare | Kaweah River | 1962 | 143,000 | Tulare Lake |
| Upper Monarch Lake Dam | Dam | Monarch Lake | Southern California Edison Co. | Tulare | East Fork Kaweah River | 1905 | 314 | Tulare Lake |

This list includes USACE, DSOD, Local agency dams and NFHL Dams.
This is not a complete list of infrastructure throughout California.

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## D.5 Sample County Maps

The following figures are sample maps of Alameda County from *Attachment D: Summary of Exposure and Infrastructure Inventory by County*. For maps of all 58 counties, see Attachment D. Information from both *Attachment F: Flood Hazard Exposure Analysis* and the Information Gathering findings, as described in this technical memorandum, are displayed graphically for each county.

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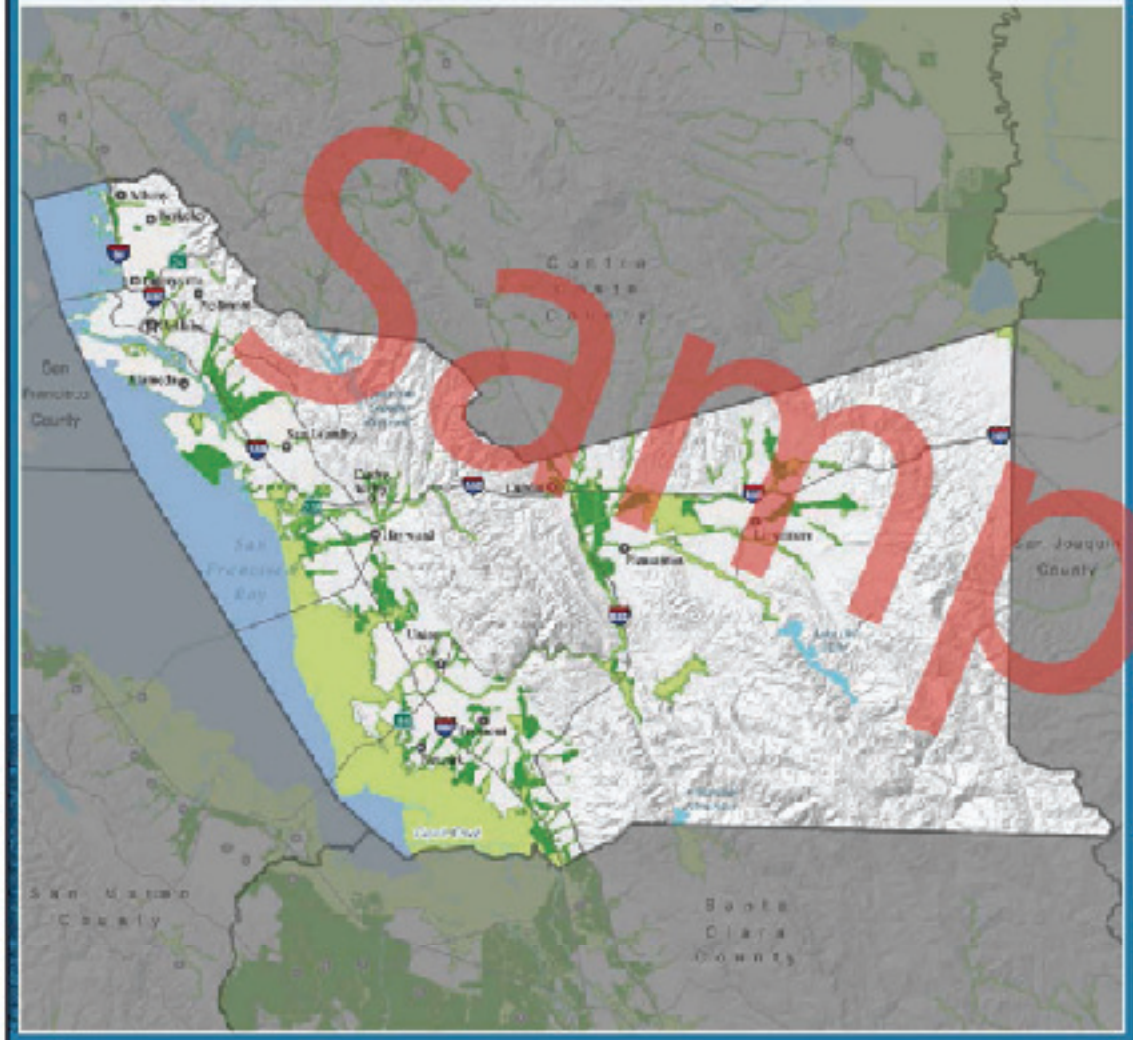
## 100-year and 500-year Floodplains




N

0 2.25 4.5 9

Miles

City

Populated Place

Highway

Major River

100-yr Floodplain

500-yr Floodplain

Major Water Body

County

DISCLAIMER: The DWR did not develop or the displayed floodplain extents and cannot guarantee their accuracy.

## History of Flooding by Event Year

1861-1862 Winter The Great Flood
1980 December, Unimpaired Issue of Alameda County
1955-1956 December - January, 1955 Christmas Flood, Alameda Creek, Bay Area
1958 February - April, Bay Area
1940-1959 December - February
1958-1959 December - March, Winter '59 Storms, Bay Area
1973 January - February, April, Central Coast Ranges (including Bay Area) to Transverse and Peninsula Ranges
1983 January, Winter Storms, San Francisco Bay Area
1986 February St. Valentine's Day Storm, San Francisco Bay Area
1998 January - February Severe Winter Storms
1999 January
1996 Alameda County, including Zone 7 Service Area
2005-2006 December - January, New Year's Eve Flood of 2006
2006 March 29 - April 3, May 10, Spring Storms
2008 January 3 - January 14, Winter Storms

## Types of Flooding

**Common:**
Riverine
Flash
Debris Flow
Coastal
Stormwater

**Other Possible:**
Tsunami
Engineered Structure Failure

## Hydrologic Regions

## Flood Hazard Exposure

### County Statistics

| | |
|---|---|
| Total Acreage | 526,337 |
| Total Population | 1.4 million |
| Total Structures | 427,199 |
| Total Value of Structures and Contents | $140 Billion |
| Total Agricultural Acreage | 10,613 |
| Total Value of Agricultural Land | $34 million |

### Summary of Exposure to Flood Hazard Reported by County

| | 100-yr Event | 500-yr Event |
|---|---|---|
| Exposed Area (acres) | 40,621 | 60,199 |
| Percent of Area Exposed | 8 | 11 |
| Population Exposed | 39,585 | 126,622 |
| Percent of Population Exposed | 2 | 9 |
| Exposed Structures | 12,123 | 36,509 |
| Value of Exposed Structures and Contents | $46 billion | $110.7 Billion |
| Exposed Agricultural Land (acres) | 1,037 | 1,394 |
| Value of Exposed Agricultural Land | $269,600 | $417,000 |
| Department of Defense Facilities | 2 | 3 |
| Essential Facilities | 8 | 49 |
| High Potential Loss Facilities | 8 | 42 |
| Lifeline Utilities | 0 | 7 |
| Transportation Facilities | 43 | 113 |
| Transportation Segments (miles) | 48 | 99 |
| Native American Tribal Land (acres) | 0 | 0 |
| Threatened and Endangered Species Exposed | 21 | 29 |
| Total Sensitive Animal Species Exposed | 45 | 46 |

Alameda County

**Figure D-1**
Summary of Available Flood Types, Flood History and Flood Hazard Exposure, Alameda County

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Jan 25, 2013

US Army Corps of Engineers

STATEWIDE FLOOD MANAGEMENT PLANNING PROGRAM

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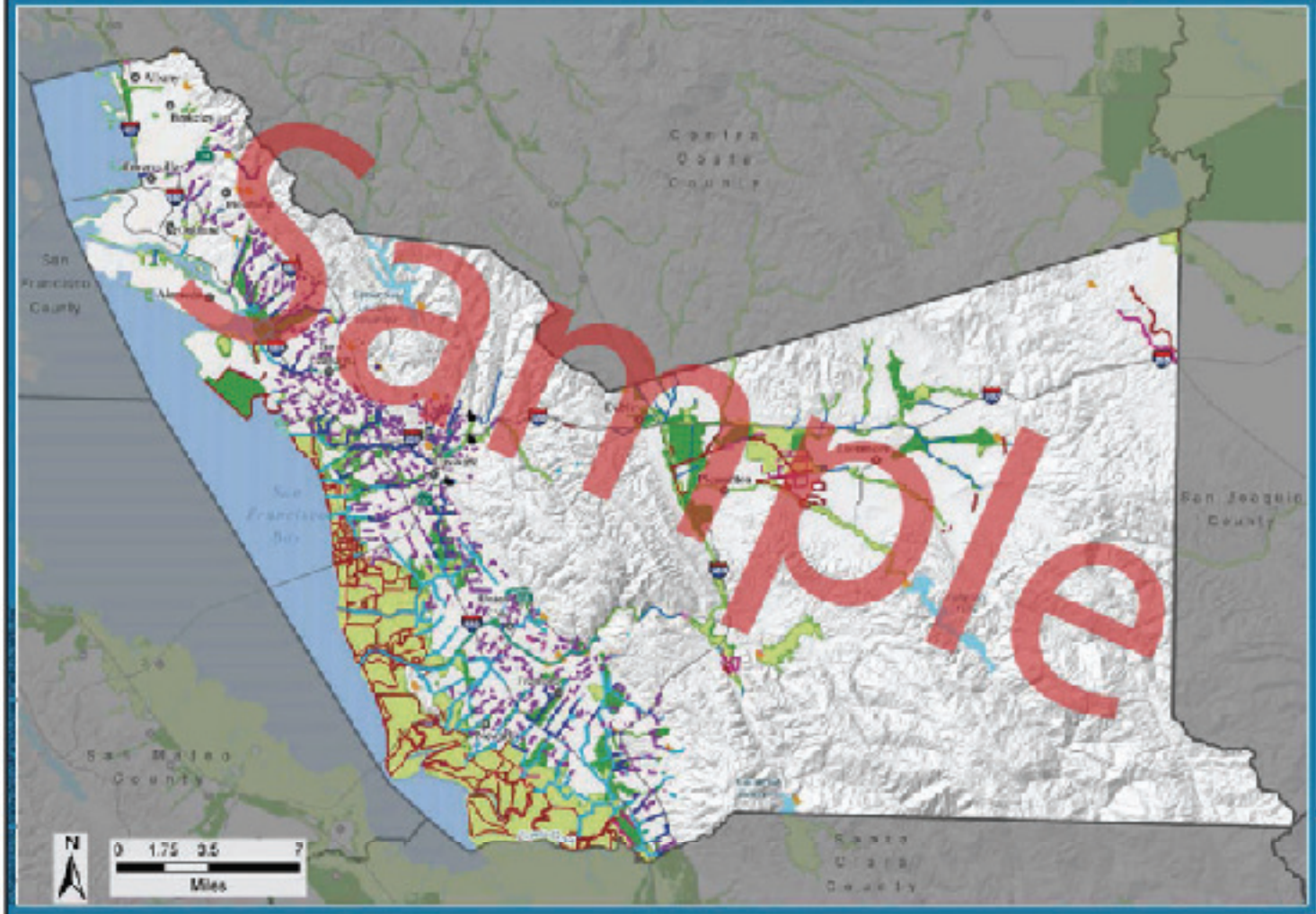
## Summary of Available Flood Infrastructure Information




Statewide GIS Data:
- City
- Populated Place
- DWR Local Agency Dam
- DWR Other Dam
- NFHL Dam or Weir
- CLD Pump Station
- CLD Local Agency Levee
- CLD Other Levee
- NFHL Levee
- NFHL Flood Event Structure
- NFHL Channel
- NFHL Control Structure
- NFHL Dike
- NFHL Retaining Wall
- Highway
- Major River
- Major Water Body
- 100-yr Floodplain
- 500-yr Floodplain
- County

## Alameda County

**Flood Infrastructure GIS Data Received from Agencies Contacted:**

Flood Control Facility
- Closed Conduit
- Concrete Channel
- Earth Channel
- Improved Creek
- Spillway

**Non-GIS, PDF/Hard Copy Flood Infrastructure Data Received from Agencies Contacted (Not Shown On Map):**

Levee
Channel
Pump Station
Detention Basin

**Agencies Contacted as Part of SFMP:**

Alameda County Flood Control and Water Conservation District
Alameda County – Zone 7

**Planned Projects:**

| | |
|---|---|
| Number of Local Projects: | 25 |
| Estimated Cost of Local Projects: | $803.3 million |
| Number of USACE Projects: | 4 |
| Estimated Cost of USACE Projects: | $39.1 million |

**Statewide GIS Data Sources:**

Cities derived from CAL FIRE incorporated city limit polygons, 2008. Populated Places from CALT, 2011. Counties from Calweb, 2008. Dams modified from DWR, Bulletin 17-03, 2008. CLD centerline from California Levee Database, v3.2rc1, 2013. NFHL levees are from the National Flood Hazard Layer (FEMA), August 2011. Highways from Statewide 2008. Rivers and Lakes modified from BFS, SVR. Floodplains compiled for SFMP, 2011.
All other flood infrastructure GIS data, noted above, received from Agencies Contacted.

Alameda County

**Figure D-2**
Summary of Available Flood Infrastructure Information, Alameda County

DRAFT

Jan. 25, 2013

US Army Corps of Engineers

STATEWIDE FLOOD MANAGEMENT PLANNING PROGRAM

DISCLAIMER: The information displayed on this map does not represent an inventory of all existing flood infrastructure in the county. Only infrastructure available as "Statewide GIS Data" or submitted in a GIS format by one of the agencies listed, by the DWR author developing all interdisciplinary floodplain maps, and cannot guarantee their accuracy.

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# Appendix E: List of Potential Projects in California

This appendix contains the Local Planned Projects and USACE Planned and Ongoing Project lists. If available at time of print, project descriptions and costs are provided. Projects are also identified as IWM, if applicable.

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**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Central Coast | Monterey | Big Sur Land Trust Carmel River Floodplain Restoration and Environmental Enhancement Project | $ — | The initial project action, commonly referred to as the Odello East Component in the Initial Study, consists of:<br>• Grading the existing farmland and access road to create an elevated agricultural preserve on approximately 40 acres on the southern edge of the Odello East site outside of the 100-year floodplain elevation<br>• Grading to restore the site's ecological function as a floodplain by creating the hydrological characteristics necessary to support floodplain restoration activities on approximately 55 acres of existing farmland.<br>A portion of the agricultural preserve would be graded to accommodate future fill material as part of subsequent Project components/actions. The second project action, referred to as the Causeway Component, consists of replacing a portion of the State Route (SR) 1 roadway embankment with a 520-foot-long causeway section. The third project action, referred to as the Levee Component, consists of:<br>• Removing approximately 2,400 linear feet of nonstructural earthen levees on the south side of the Carmel River channel<br>• Grading at the eastern boundary of the project site on property owned by the Monterey Peninsula Regional Park District to encourage flood flows to enter into the south floodplain area at Odello East | Yes | Agriculture |
| Central Coast | Monterey | Coastal Wetland Erosion Control and Dune Restoration | $ 1,070,164 | The proposed project will enhance and restore wetland and sand dune ecosystems in central Monterey Bay, and will control erosion in salt marshes directly behind the dunes around Moss Landing. These marshes are critical buffers to prevent salt water from entering surrounding farmlands, especially the Salinas Valley, yet the farmlands are eroding away at accelerating rates. Sand dunes help retain fresh water at the coast, recharge groundwater, retard saltwater intrusion, and minimize storm damage from the sea. Currently, much of the physical dune structure around Monterey Bay is fairly intact but is highly degraded with invasive non-native plants, which continue to spread. Monterey Bay is the largest indentation widely open to the sea on the Pacific coast of the U.S., with correspondingly large and ecologically important dune systems, and it is the core area of the Monterey Bay National Marine Sanctuary. The target area for this project, the central Monterey Bay, has the lowest and most degraded sand dunes in the region. These dunes will be the first to fail as sea level rises from storms, El Niño cycles, and climate change. Should they fail, salt water will overflow into the Salinas Valley, compromising one of the nation's most productive agricultural centers. | Yes | Ecosystem |
| Central Coast | Monterey | Continued Enhancement of Groundwater/ Surface Water Models | $ — | | Yes | Water Supply |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Central Coast | Monterey | Implementation of the Moro Cojo Slough Management and Enhancement Plan: Restoration of the Upper Slough | $ 1,450,636 | This project will involve the restoration of 120 acres of the Moro Cojo Slough containing tidal and brackish water marsh (a State marine reserve) that receives fresh water input from agricultural lands above. The project also will restore the hydrologic connectivity of the upper, middle, and lower reaches of the Moro Cojo Slough by linking multiple marsh areas with new lands previously lost to agriculture. The project will reestablish an interconnected brackish water wetland ecosystem. The result of this project will be to reestablish hydrologic connectivity and ecosystem function, enhance wildlife habitat, reestablish wetland habitat that supports endangered species (brackish water snail and tidewater goby), and improve water quality flowing from the watershed into several State marine reserves and the Monterey Bay National Marine Sanctuary. This will be a 4-year project with four major outcomes:<br>1) Protection of wetland marsh and adjacent upland habitats through easement or acquisition<br>2) Filtration of agricultural runoff with sediment basins and treatment wetlands prior to water entering the main slough<br>3) Restoration of the main slough to increase open-water habitat and overall system complexity<br>4) Restoration of wetland habitat continuity between the three main sections of the Moro Cojo Slough | Yes | Ecosystem |
| Central Coast | Monterey | Lower Carmel River and Lagoon Floodplain Restoration and Enhancement Project | $ 18,310,032 | This program consists of three projects—Carmel River Lagoon and Beach Studies, Lower Carmel River Floodplain Restoration and Enhancement, and Hacienda Carmel Flood Bypass.<br>The Carmel River Floodplain Restoration and Environmental Enhancement Project proposes to restore and enhance the hydrologic function and connectivity of the Odello East property with the lower Carmel River region and southern floodplain. The Project goals include:<br>1) Restore approximately 90 acres of historical coastal wetlands, upland habitat, and/or riparian habitat on existing agricultural land to enhance the site's capacity to function as part of the historical Carmel River floodplain and to provide additional habitat to the lower Carmel River ecosystem<br>2) Create an approximately 40-acre agricultural preserve to achieve the goal of preserving the agricultural heritage of the project area in a manner that is compatible with adjacent habitat<br>3) Replace a segment of SR 1 with a 520-foot causeway to improve floodwater conveyance under the highway and reduce flood hazards to SR 1<br>4) Remove 2,400 feet of the south bank levee and "Blister" to allow the lateral dispersal of floodwater onto the south overbank area and project site | Yes | Ecosystem |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Central Coast Wetlands Group | Monterey | Northern Gabilan Mountain Watershed Management Project | $ 1,450,636 | The project consists of three phases to restore a sub-watershed within the upper Gabilan watershed, and it serves as a model for restoration of watersheds within the Central Coast. Phase I provides the foundational watershed characterization and process analysis necessary to develop meaningful and effective watershed management. It includes a review of previous relevant studies and preparation of original analysis along with a compilation of spatial data and key watershed processes. Analysis will be integrated with research and planning projects done by others. The synthesis of this information will be used to target the planning and restoration for one sub-watershed. This will be accomplished by addressing the changes in the watershed functions and processes (physical, chemical, and biological) that are caused by agriculture and urban activity and that affect watershed health. Additionally, a community-based engagement process will be conducted to review Phase I information and watershed management options. Phase I will result in a management methodology and a master restoration plan for one of three sub-watersheds. Phase II will develop site design for prioritized restoration locations within the chosen sub-watershed, and Phase III will implement those designs. | Yes | Ecosystem |
| Central Coast | Monterey | Pajaro River Flood Warning and Damage Reduction Project | $ — | This study will develop a locally acceptable plan for flood protection features along the Pajaro River, Corralitos Creek, and Salsipuedes Creek to increase the level of flood protection afforded by the project. | | |
| Central Coast | Monterey | Pajaro River Parkway Plan | $ — | The Pajaro River Parkway Plan is a technical evaluation to identify public access and recreational opportunities that can be incorporated into the Levee Reconstruction Project. The plan will include an evaluation of expanding recreational opportunities within the Pajaro River Levee Reconstruction Project area, engaging with the public, outreach and negotiation with landowners, development of alternatives, cost estimates, benefit analysis, environmental constraints analysis, and implementation plan. | Yes | Recreation |
| Central Coast | Monterey | Salinas River Channel Maintenance Program (CMP) | $ 770,000 | Under the new Regional General Permit for the 2009-2014 Salinas River CMP, participants would continue to perform channel maintenance activities on a voluntary basis to improve flood flow conveyance capacity and minimize bank erosion to help reduce the risk of flooding during and after major storm events. In general, channel maintenance activities are typically conducted above and below the ordinary high-water mark (OHWM) of the river channel. | | |
| Central Coast | Monterey | Salinas River Flood Risk Reduction Project | $ — | The Lower Pajaro River Flood Risk Reduction Project (Pajaro Levee) being conducted by the U.S. Army Corps of Engineers (USACE) is proceeding toward completion of a publicly reviewable draft of the Environmental Impact Statement. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Central Coast | Monterey | Salinas Valley Water Project | $ 2,390,000 | The Salinas Valley Water Project has three components:<br>• Enlarging the spillway at Nacimiento Dam to handle a maximum probable flood<br>• Prolonging releases of water to the Salinas River so that the basin's groundwater can be recharged<br>• Installing a diversion structure on the Salinas River near Marina to temporarily store and divert water during dry periods<br>That water, about 10,000 acre-feet per year, will be pumped to the Castroville Seawater Intrusion Project area, thus further reducing groundwater pumping and recharging of the area's aquifers to avoid seawater intrusion. During winter months, the diversion structure will be lowered so that water can flow to Monterey Bay, and endangered steelhead trout can migrate up river to spawn in Arroyo Seco River and other upstream waters. Flow rates will be maintained in the river, and fish screens will be installed to support steelhead migration. | Yes | Water Supply |
| Central Coast | Monterey | Water Quality Enhancement of Tembladero Slough Phase II | $ 609,525 | This project is Phase II of Water Quality Enhancement of the Tembladero Slough and Coastal Access for the Community of Castroville, Phase I of which has been funded by the IRWM Plan Round 1. During Phase I, Central Coast Wetlands Group will work with County agencies, agricultural landowners, and the Community of Castroville for design and permitting of a select set of water quality/wetland management structures. These projects will utilize a variety of water quality management innovations, including the treatment train approach (i.e., detention/sedimentation features, pollutant filtration/biological degradation of pollutants and water polishing areas). During Phase II of this project, 20 acres in total (approximately six projects) will be constructed, based on the plans from Phase I that support and integrate the multiple objectives of the Greater Monterey County IRWM Plan, emphasizing urban and agricultural water quality enhancement, flood management, habitat restoration and support of various watershed planning and permit processes. Features are selected based on available space, hydrologic requirements, and adjacent landowner concerns, but preferentially support projects that enhance habitat and open space features, as well as improve water quality. | Yes | Water Quality |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Central Coast | Monterey | Watershed Approach to Water Quality Solutions | $ 475,562 | This project will improve water quality within the Lower Salinas River Watershed in multiple impaired bodies of water that are listed on the 303d list for pollutants such as nutrients, pesticides, sediment, and bacteria. These bodies of water include the Salinas Reclamation Canal, Santa Rita Creek, and Tembladero Slough, all of which are considered the most polluted bodies of water on the Central Coast with 37 listings of total maximum daily loads (TMDLs). In agricultural areas, efforts will focus on outreach and referrals for existing programs that will leverage funding for implementation of irrigation and nutrient management practices. Efforts also will focus on the Livestock and Lands program, while implementing some much-needed management measures such as erosion control for strawberry crops. Restoration projects along Santa Rita Creek will be installed to promote environmental stewardship, reduce illegal dumping, expand the floodplain, stabilize banks, and increase biofiltration of pollutants through revegetation of native plants. Of utmost importance is the development of tracking tools for management measures and water quality monitoring to build a knowledge base. This project has been funded through Round 1 IRWM Implementation Grant funds. | Yes | Water Quality |
| Central Coast | San Luis Obispo | Flood Control Zone 1/1A Waterway Management Program | $ — | The program will increase the capacity of the leveed lower 3-miles of Arroyo Grande Creek and simultaneously enhance water quality and sensitive species habitat within the managed channel. | Yes | Water Quality |
| Central Coast | San Luis Obispo | Flood Control Zone 1/1A Waterway Management Program, Alternative 3a Project | $ 2,850,369 | This project includes a comprehensive set of actions designed to restore the capacity of the lower 3 miles of the Arroyo Grande Creek flood channel, which has levees, to increase flood protection to homes, prime agricultural lands, and critical urban infrastructure in the lower Arroyo Grande Creek watershed. This project implements an integrated, watershed approach to flood management through a collaborative and community-supported process without unfairly burdening communities, neighborhoods, or individuals. | | |
| Central Coast | San Luis Obispo | Flood Management Plan | $ 75,000 | Create a Flood Management Plan that will identify several of the most significant constraints to implementing flood control projects and that will propose methods to address these challenges. | | |
| Central Coast | San Luis Obispo | Morro Bay Harborwalk | $ — | The City of Morro Bay, in cooperation with the Morro Bay National Estuary Program and the County of San Luis Obispo, will be constructing multimodal transportation system improvements that include enhancement and rehabilitation of approximately 5 acres of coastal dune habitat. Within the coastal dune habitat, 1.75 acres will be treated with aggressive non-native species abatement followed by native revegetation using locally collected native seed, and the remaining 2.99 acres will receive non-native species abatement with native species recruitment for restoration. Stormwater filtration and management measures also will be included in the construction. | Yes | Ecosystem |
| Central Coast | San Luis Obispo | San Luis Obispo Waterway Management Plan | $ 36,620,000 | This program will provide flood protection and simultaneously will enhance water quality and sensitive species habitat in the San Luis Creek watershed from the City of San Luis Obispo to Avila Beach. | Yes | Water Quality |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Central Coast | Santa Barbara | Las Vegas/San Pedro Creek | $ — | The Santa Barbara County Flood Control District (CFCD), in partnership with the California Department of Transportation (Caltrans), is proposing hydraulic capacity improvements along Las Vegas Creek and San Pedro Creek under Calle Real, Route 101, and the Union Pacific Railroad (UPRR). The proposed project would increase the hydraulic capacity of the two creeks from a 10-year to a 25-year storm event. | Yes | Transportation |
| Central Coast | Santa Barbara | Lower Arroyo Burro Restoration Program | $ — | Design and implementation of creek bank stabilization and riparian habitat restoration projects on a reach-by-reach basis within the lower Arroyo Burro watershed. A collaborative project of the City, County, and private landowners, restoration projects would include large-scale modifications to the creek channel (such as widening, creation of floodplains, natural grade control structures), removal of key invasive plant species, installation of native plant species, and improvements to public access. The restoration efforts would be designed and implemented to reduce erosion, reduce flood risks, improve water quality, improve wildlife habitat and diversity, and improve educational and recreational opportunities. | Yes | Ecosystem |
| Central Coast | Santa Barbara | Upper Mission Creek Flood Management and Habitat Improvement Project | $ — | Removal of half of the concrete bottom slab for the entire mile of the channel, excavation of several feet into the underlying materials and construction of a natural-bottom creek channel with areas of lowered-concrete-embedded roughness. Results will include restoration of more than 1 mile of creek channel and the creation of more than 1 acre of wetland habitat, including removal of three fish passage barriers, removal of non-native plants, and replacement with native plants. | Yes | Ecosystem |
| Central Coast | San Benito | San Juan Basin Surface Drainage | $ — | San Benito County Water District has proposed alternatives in the San Juan Basin area for surface water detention and drainage that can be integrated with an existing Caltrans reconstruction plan for Highway 156 between San Juan Bautista and Hollister. This plan will provide surface water detention and water quality benefits to a tributary of the Pajaro River, thereby assisting with stormwater runoff quality concerns and reducing peak flows from the San Juan Basin into the Pajaro River. | Yes | Water Quality |
| Central Coast | Santa Clara | Lower Llagas Creek Flood Protection Project and Creek Capacity Restoration Project | $ 8,300,000 | Restoration project to address reduced channel capacity in system with levees. May remove existing levees to widen floodplain. Project goals include:<br>1) Evaluate the current flood risk in the area surrounding the project versus the design-level flood risk<br>2) Develop options to provide flood protection for Lower Llagas Creek Reach 2 beyond the Soap Lake Floodplain in accordance with Federal Emergency Management Agency (FEMA) criteria<br>3) Identify opportunities for environmental restoration and corridor preservation<br>The project will restore flood capacity in Lower Llagas Creek, coordinate with South County Wastewater Authority as a principal stakeholder and water resource co-planner, and integrate flood protection with habitat protection to satisfy Endangered Species Act regulations. | Yes | Ecosystem |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Central Coast | Santa Clara | Soap Lake Floodplain Preservation Project (High-Priority Project) | $ 18,405,050 | The Soap Lake Project, Phase 1 provides nonstructural flood protection through preservation of approximately 9,000 acres of agricultural lands. It is the first phase of the long-term recommended nonstructural, 100-year flood protection project developed by the Pajaro River Watershed Flood Prevention Authority (FPA). The project provides flood protection in the lower Pajaro River watershed by preserving the Soap Lake floodplain. The floodplain provides natural flood storage and attenuation characteristics for the Pajaro River watershed and reduces the flow that needs to be conveyed through the downstream channel. | Yes | Ecosystem |
| Central Coast | Santa Clara | Upper Llagas Creek project | $ — | | | |
| Central Coast | Santa Clara | Restoration of the Upper Pajaro River Floodplain | $ — | Develop a plan for restoration of a wildlife corridor that will also preserve undeveloped land that is valuable for flood attenuation. | Yes | Ecosystem |
| Central Coast | Santa Cruz | 38th Avenue Detention Basin Retrofit | $ 500,000 | The proposed project is a retrofit of a County-maintained detention basin to accommodate low flows. The detention basin is at the intersection of 38th Avenue and Brommer Street. It is an open-bottom basin and was designed to provide flood storage during large storms that exceed the flow capacity of the downstream system. The basin is offline, and water enters the basin only during high-flow events. All low flows currently bypass the basin through a pipe system. This project concept includes reconfiguring the inlet and outlet so that low flows can enter the basin and have the opportunity to be filtered through a vegetated path and infiltrated into the open channel. This project should help reduce the volume and increase the quality of the urban runoff discharging to the channel downstream of the project site. | Yes | Water Quality |
| Central Coast | Santa Cruz | Aptos Watershed Drainage Plan | $ — | This project will develop a Drainage Master Plan for the Aptos watershed to better manage flood flows, reduce channel erosion, promote groundwater recharge, and improve stormwater quality to reduce surface water pollutants entering Monterey Bay. Work will include evaluations of the drainage systems and analyses of the watershed and the proposed improvements. | | |
| Central Coast | Santa Cruz | Coward Creek Bank Stabilization | $ — | This is another streambank stabilization demonstration project proposed by the Santa Cruz County Resource Conservation District (RCD). The project will be implemented along Coward Creek in an area where the stream is being severely undercut and is causing erosion-related loss of land to adjacent properties. | | |
| Central Coast | Santa Cruz | Green Valley Watershed Stream Bank Stabilization | $ — | The Santa Cruz County RCD has proposed the Green Valley Watershed Streambank Stabilization project as a demonstration project for stabilization techniques. The project will improve a section of stream along Casserly Creek that has a deeply incised channel, excessive bank erosion, and little riparian vegetation. | | |
| Central Coast | Santa Cruz | Gully G Drainage Improvement | $ 1,771,000 | This project includes structural best management practices (BMPs) to reduce flow rate, promote infiltration, and decrease sediment loads in the Gully G drainage. | Yes | Water Quality |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Central Coast | Santa Cruz | Levee Reconstruction Project | $ — | This project is a joint effort among Santa Cruz County, Monterey County, the USACE, and Action Pajaro Valley. The project is intended to increase levee flow capacity from 22,000 cubic feet per second (cfs) to 44,000 cfs, which will provide conveyance of the 100-year flood event, protecting local communities in the lower Pajaro River Watershed from flood damage. The project is an integration of several efforts. The first phase includes excavation of benches within the river channel and a stakeholder process to ensure that local funding will be available for the actual reconstruction of the levees. Construction of the levees is the second phase of the project. | | |
| Central Coast | Santa Cruz | Low-Impact Development (LID) Demonstration Projects | $ 750,000 | The proposed project is the implementation of LID measures that can be retrofitted into the existing County government facilities at 701 Ocean Street in Santa Cruz, California. Measures that will be considered for this project include:<br>• Porous pavement<br>• Biofilters (e.g., swales, bioretention, buffer strips, landscape planter box)<br>• Rainwater reuse<br>• Soil amendments<br>• Disconnected downspouts<br>• Drought-tolerant planting in place of turf<br>• Green roofs and tree planting<br>• Solar panel installation, and more<br>These facilities should serve to benefit stormwater quantity and quality leaving the site and entering the San Lorenzo River. This project will provide highly visible demonstrations of how LID components can be incorporated into existing site design. | Yes | Water Quality |
| Central Coast | Santa Cruz | Lower Pajaro River Levee Reconstruction Project Phase 1 | $ 157,500,000 | Phase 1 of the project includes:<br>• Task A is a Stakeholder Process that includes: 1) community consensus process; 2) a public outreach and survey program leading to a successful benefit assessment vote for the project; 3) development of a local governance structure<br>• Task B includes: 1) Agreement on and Ratification of an Adaptive Management Maintenance Manual for ongoing maintenance of the existing and new levee systems; 2) Bench Excavation, Phase 1 | | |
| Central Coast | Santa Cruz | Lower Pajaro Valley and Watsonville Sloughs Conservation Planning and Funding Incentives Program | $ 60,000 | The purpose of this program is to identify and prioritize strategic land conservation opportunities in the lower Pajaro Valley and Watsonville Sloughs to achieve multiple resource benefits; develop specific funding and implementation strategies; and engage key landowners to help them understand the financial benefits associated with easements and other conservation funding. The goal is to catalyze a pilot conservation project that adds to the network of protected lands and demonstrates how easement funding can offset or incentivize land fallowing or other water conservation actions. | Yes | Ecosystem |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Central Coast | Santa Cruz | Pajaro River Bench Excavation Project | $ 8,794,900 | The project proposes to excavate excess sediment from select locations along the upper terrace benches inside the Pajaro River levees to improve the flood-carrying capacity of the levee system. The proposed project would create a 2-year floodplain to reestablish flow levels at bank-full capacity. The proposed bench excavation project is also specifically designed to relieve the magnitude and severity of potential flooding caused by failure of the Pajaro River levees. | | |
| Central Coast | Santa Cruz | Pajaro River Watershed Study | $ 1,000,000 | The purpose of the Pajaro River Watershed Study would be to complement the ongoing development of the Pajaro River Flood Control Project by investigating management measures that are important to improving the overall public acceptability of the flood damage-reduction project, but are outside the scope of project authorization. The Pajaro River Flood Control Project was authorized in 1966 as a single-purpose flood damage reduction project. As a single-purpose project, only flood damage reduction benefits can be used to justify Federal investment in the project; however, stakeholders have identified other outputs, such as geomorphic stability and steelhead habitat improvements, that are important for overall public acceptability of the project. The watershed study provides a means to investigate these other outputs. The watershed study would also provide information that will complement the ongoing Soap Lake Preservation Project and other proposed water resources projects in the Pajaro River Watershed. | Yes | Ecosystem |
| Central Coast | Santa Cruz | Repair Erosion and Increase Infiltration at Faculty Housing Outfall above High Street | $ 322,210 | Project includes diverting stormwater flows from an existing storm drain outfall into two new bioswales to increase infiltration. Project will repair erosion in existing channel. Overflow from stormwater not diverted to bioswales will continue down armored swale into two new bioretention areas. | | |
| Central Coast | Santa Cruz | Soquel Creek Linear Park, Parking Improvements, Habitat Restoration, Flood Mitigation and Urban Greening Project | $ 1,500,000 | The Linear Park project is located in Santa Cruz County, California, in Soquel Village. The parcels (030-153-10 and 24, plus others) represent more than 2 acres in Soquel Village along Soquel Creek. The project will implement the Soquel Village Plan. The proposed Soquel Creek Linear Park design will involve neighboring parcels and will provide:<br>• Economic vitality<br>• Vehicular and pedestrian improved circulation<br>• Parking and business waste infrastructure consolidation<br>• Water quality and quantity with stormwater BMPs and LID<br>• Accessible recreational uses (including nature pathways, open spaces, and civic spaces)<br>• Riparian habitat restoration partnerships between the Community and private and public entities (including the RCD, the Soquel Village Parking and Business Association, County Parks, Soquel History Association, and others) | Yes | Water Quality |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Central Coast | Santa Cruz | Stormwater Allocation Program (SWAP) for Santa Cruz County | $ 600,000 | To meet State-mandated stormwater hydromodification requirements, new development and redevelopment are required to offset any increases in stormwater runoff. Normally, this is achieved using onsite controls. However, a significant number of projects do not have the space/capacity onsite to meet this requirement. The ability to utilize offsite facilities to meet the hydromodification requirement would benefit water quality, groundwater recharge, and development/redevelopment. The project will evaluate the potential for trading of stormwater capacity (volume) credits within the City of Watsonville. Trading would allow for hydromodification-required projects within watershed boundaries instead of specific site boundaries, which promotes a greater benefit to water quality, quantity, and overall watershed improvement. | Yes | Water Quality |
| Central Coast | Santa Cruz | Update of the Arana Gulch Watershed Assessment and Enhancement Plan (2002) Phase I and generated Phase II | $ 160,000 | Update the 2002 Arana Gulch Watershed Assessment and Enhancement Plan and generate a Phase II Plan. Phase I Plan has been the guiding document for implementing identified restoration projects within Arana Gulch. Accomplishments to date include 10 of the highest-priority Phase I restoration projects that are improving water quality and wildlife habitat throughout the watershed. The Phase I plan calls for a review every 10 to 12 years to reevaluate the Plan against current conditions, guidelines, and regulations (completed in 2000, thus revision is at least a year late). Phase II will address current conditions within the watershed and identify areas for reducing peak flows, which are central to diminishing sediment-related issues. Additional opportunities for resource management will be evaluated such as revisitation of Phase I projects yet to be implemented, increased Arana Gulch watershed advocacy, flow gauge installation, annual stream-walk monitoring. | Yes | Water Quality |
| Central Coast | Santa Cruz | West Watsonville Slough Project | $ 14,500,000 | The West Watsonville Slough Project will protect and enhance freshwater coastal wetlands, improve floodplain function in Watsonville Slough, preserve agricultural lands, and provide compatible public access. | Yes | Ecosystem |
| Colorado River | Imperial | Canal Relocation Study | $ 2,000,000 | The Canal Relocation Study provides a regionally coordinated study and development of alternative models for relocating existing canals around cities within the county. | | |
| Colorado River | Imperial | City of El Centro Storm Drainage Facilities Upgrades | $ — | This project will identify new public and private funding sources to fund needed improvements. | | |
| Colorado River | Imperial | Flood Water Management Study | $ 5,000,000 | This is a regionally coordinated study and development of floodwater management models using existing Imperial Irrigation District and other conduits within the county. | | |
| Colorado River | Imperial | Storage and Retention Basins | $ 5,000,000 | This project will maintain and improve the county's stormwater drainage system, including continued development of localized storage and retention basins. | | |
| Colorado River | Riverside | Banning Master Drainage Plan Line D-1 | $ 923,000 | The project includes storm drain improvements for the City of Banning along Hathaway Street between Ramsey Street and George Street. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Colorado River | Riverside | Banning Master Drainage Plan Line F | $ 1,424,000 | The project provides for storm drain construction in the City of Banning along San Gorgonio Avenue from an outlet at Smith Creek Channel north, approximately 3,000 feet to Westward Avenue. | | |
| Colorado River | Riverside | Banning Master Drainage Plan Line H | $ 2,066,260 | The project consists of construction of approximately 3,400 feet of reinforced-concrete pipe (RCP), ranging from 36 inches to 66 inches in diameter, for a storm drain along Hathaway Street from an outlet at Smith Creek Channel north to Barbour Street. Mapping will be complete by the end of Fiscal Year (FY) 2009-2010. | | |
| Colorado River | Riverside | Banning Master Drainage Plan Line I | $ 550,000 | This project is a box crossing on Smith Creek at Ramsey Street, including inlet and outlet works. | | |
| Colorado River | Riverside | Banning Master Drainage Plan Line K | $ 497,000 | This project is a box crossing on West Pershing at Ramsey Street, including inlet and outlet works. | | |
| Colorado River | Riverside | Banning Master Drainage Plan Line D-2 | $ 2,205,200 | This project consists of storm drain improvements along Hargrave Street between Ramsey Street and Indian School Lane. | | |
| Colorado River | Riverside | Eagle Canyon Dam | $ 7,192,510 | Eagle Canyon Dam consists of the construction of Eagle Canyon Dam located south of Canyon Plaza Drive. The project is dependent on the cleanup of an existing dump by the cities of Cathedral and Palm Springs. Capital Improvement Program (CIP) costs are based on the premise that the $1,500,000 cleanup effort will be incorporated into the dam construction contract but will be funded by the City. | | |
| Colorado River | Riverside | East Cathedral Canyon Channel - Levee Certification | $ 214,280 | The project provides embankment protection to meet current FEMA standards, which is required for certification of the levee system for the west bank of the E. Cathedral Canyon Channel. | | |
| Colorado River | Riverside | Gilman Home Channel Line A | $ 5,615,970 | The project consists of construction of approximately 1,000 linear feet (LF) of RCP from 8th Street westerly in Cottonwood Road to an existing channel at George Street between 10th Street and 12th Street. | | |
| Colorado River | Riverside | Palm Canyon Wash - Arenas Levee Restoration | $ 2,569,700 | This project represents the rehabilitation of existing left- and right-bank levees to meet current FEMA levee freeboard criteria and removal of excess material from Palm Canyon Wash Channel to restore the channel flow line to the original design flow line. | | |
| Colorado River | Riverside | Palm Canyon Wash - Levee Certification | $ 62,910 | This restorative construction is required to bring the levee into compliance with FEMA certification guidelines. The project, consisting of short floodwall and soil cement cap, should be mostly completed in FY 2009-10. | | |
| Colorado River | Riverside | Palm Springs Master Drainage Plan Line 41 | $ 15,009,620 | Drainage Plan Line 41 includes storm drain improvements from existing Stage 2 at Golf Club Drive westerly in East Palm Canyon Drive to Cherokee Way. Includes Lateral 41C in Mathew Drive. | | |
| Colorado River | Riverside | Palm Springs Master Drainage Plan Lines 43 and 43a | $ 3,640,060 | This project will connect the Eagle Canyon Dam outlet to West Cathedral Canyon Channel. The exact route is not settled. Current FY budget will provide for design. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Colorado River | Riverside | Tahquitz Creek Levee Reconstruction - Palm Springs | $ 1,200,000 | The proposal is to repair and reconstruct an existing flood control levee along the Tahquitz Creek in Palm Springs, from its confluence with the Palm Canyon Wash extending upstream approximately 0.75 miles adjacent to the City's wastewater treatment plant (WWTP). The repair and reconstruction of the levee would ensure that the levee satisfies Federal requirements for levee construction established in Title 44 of the Code of Federal Regulations (CFR), Section 65.10, and that the levee would withstand the effects of a 100-year storm in Tahquitz Creek and provide flood control protection to the adjacent WWTP. | | |
| Colorado River | Riverside | Verbena Channel | $ 5,418,080 | The original open channel, from an outlet south of Dillon Road 8,000 feet north to Two Bunch Palms Trail, will be replaced by a storm drain and detention basin system from Camino Idilio extending approximately 1 mile north to Verbena Drive at Park Lane. | | |
| Colorado River | Riverside | West Desert Hot Springs Master Drainage Plan (MDP) | $ — | A formalized Regional Drainage Plan (RDP) would identify regional solutions and ensure that the necessary flood control facilities associated with the different development areas are implemented to mitigate flood hazards. | | |
| Colorado River | Riverside | West Desert Hot Springs Master Drainage Plan | $ — | This project provides for the development of the Master Drainage Plan and 2011 goals for West Desert Hot Springs. | | |
| Colorado River | Riverside | Whitewater River - Levee Restoration | $ 1,380,310 | This project restores the levee located in Whitewater River to improve the integrity of the flood control structure. | | |
| Colorado River | Riverside | Cushenbury Flood Detention Basin | $ 2,000,000 | The project is proposed to capture runoff from the San Bernardino Mountains in the Lucerne Valley Sub-basin. Currently, large storm flows drain to beds of dry lakes in the area, and the lakebeds have low percolation rates. Consequently, the majority of water that drains to the lakebeds is lost to evaporation and never enters the basin. The project would divert storm flows to detention basins with high rates of percolation to decrease losses from evaporation. | Yes | Water Supply |
| Colorado River | San Bernardino | Donnell Basin | $ 4,000,000 | Based on the Twentynine Palms Master Plans of Drainage Study, the existing Donnell Basin would need to be expanded to act as a detention basin to reduce flows downstream. A decrease in downstream flows will provide safer crossings and conveyance systems for motorists at Adobe Road, Utah Trail, and the Amboy Road Bridge. The basin project is estimated to cost $3.5 million dollars and is currently in design. | | |
| North Coast | Del Norte | Hunter Creek | $ — | | | |
| North Coast | Del Norte | Klamath Glen River Levee System, Update pumping system and maintenance of relief well system | $ — | | | |
| North Coast | Del Norte | Klamath River Estuary Wetland Restoration Prioritization | $ — | The document develops guidance for prioritizing wetland restoration projects required through compensatory mitigation. | Yes | Ecosystem |
| North Coast | Del Norte | Requa Bridge Deck Raise | $ — | | Yes | Transportation |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| North Coast | Del Norte | Sand Mine Road | $ — | | | |
| North Coast | Humboldt | Blue Lake Local Agency Levee System, Local Levee Assistance Program (LLAP) Local Levee Evaluation (LOLE) | $ 170,000 | | | |
| North Coast | Humboldt | Jacobs Avenue Local Agency Levee System, LLAP LOLE | $ 135,000 | | | |
| North Coast | Humboldt | Mattole Integrated Watershed Management Initiative | $ 4,459,000 | The Mattole Integrated Watershed Management Initiative provides a comprehensive approach to watershed restoration in the Mattole area through streamflow enhancement, riparian restoration, coho salmon recovery rearing, streamflow, as well as turbidity monitoring, sediment stabilization, and removal of invasive plants. Seven water storage tanks will be installed in the Mattole River headwaters, totaling 350,000 gallons to augment summer stream flows in critical reaches of coho salmon habitat. Residents agree to turn off instream pumps when directed and begin using water from storage tanks. Recovery rearing of coho salmon will be implemented as a temporary measure to avoid extirpation until stream flow and habitat issues are more fully addressed in the headwaters. Downstream work to control sediment will take place through the installation of bioengineered willow fences that will reduce active erosion and increase streamside shade through the planting of native riparian trees, shrubs, and grasses. Invasive plants will be removed on project sites prior to implementation, and turbidity and streamflow monitoring will ensure that project goals are achieved. | Yes | Ecosystem |
| North Coast | Humboldt | Potential Blue Lake, Local Agency Levee System LLAP, Local Levee Critical Repair (LLCR) | $ — | | | |
| North Coast | Humboldt | Potential Jacobs Avenue Local Agency Levee System, LLAP, LLCR | $ — | The system consists of two earthen embankment levees and associated infrastructure, including access roads, pressure-relief wells, culverts, and flap gates. The length of the entire project is approximately 3.4 miles. The water-side slopes of the levees are armored with riprap slope protection. | | |
| North Coast | Humboldt | Redwood Creek Flood Control Local Levee Assistance Program (LLAP) Project | $ 154,378 | | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| North Coast | Humboldt | Rohner Creek Flood Control and Riparian Habitat Improvement Project - City of Fortuna Stormwater Flood Management Grant Project | $ 6,900,000 | This project will provide an analysis of alternatives, including:<br>• Expansion/improvement of existing detention basin above Hillside Drive<br>• New detention basin near pistol range east of rodeo grounds<br>• New detention basin in upper watershed<br>• New bypass culvert/swale near Fortuna High School<br>• New bypass culvert/swale along Fortuna Boulevard<br>• Removal/modifications of bridge crossings<br>• Alteration in channel roughness through channel maintenance<br>• Channel widening/terracing | | |
| North Coast | Humboldt | Rohner Creek Flood Control and Salmonid Habitat Improvement Project | $ 5,000,000 | The Rohner Creek Flood Control and Salmonid Habitat Improvement Project is a watershed-based, channel corridor-scale project with multiple objectives. The project is intended to provide immediate and substantial improvements to channel corridor function that will benefit aquatic organisms and reduce flood frequency within the City of Fortuna.<br>Rohner Creek, at its confluence with Strongs Creek (located approximately 1,000 feet upstream from the Eel River), has a 4.5-square-mile watershed ranging in elevation from 25 to 1,600 feet. The upper portion of the watershed is predominately composed of second- and third-growth redwood forest; whereas, the mid-portion consists of rural residential areas. The lower portion of the watershed is composed of residential, commercial, and industrial land uses and lies within the city limits of Fortuna.<br>Because of historical channelization and encroachments, Rohner Creek through the urbanized reach of Fortuna experiences overbank flows on a 1.5-year recurrence. Historical attempts to reduce flooding throughout the corridor have resulted in the absence of complex and diverse instream habitats suitable to support native stocks of salmonids, including Chinook salmon, steelhead trout, and the State- and Federally listed Coho salmon.<br>The proposed project is taking a channel corridor approach in identifying opportunities to integrate habitat enhancement elements with flood reduction improvements through the 1-mile project corridor in the city of Fortuna. Conceptual design-level hydrologic, hydraulic, and geomorphic analyses are currently evaluating a suite of improvement opportunities throughout the project corridor. These improvements will address localized streambank mass wasting, channelization, and the absence of salmonid habitat elements throughout the corridor. These improvements will benefit ecological and hydraulic function of the corridor, focusing on instream features and riparian plantings that will improve corridor habitats while reducing flood frequency. Once the improvements are identified and associated opinion of probable costs are developed, the City will prioritize the projects and commence final design, California Environmental Quality Act (CEQA) documentation, and permitting to support the priority projects as available funding allows. | Yes | Ecosystem |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| North Coast | Humboldt | Salt River Restoration Project by Humboldt County RCD, and California State Coastal Conservancy | $ 5,950,000 | This project will improve channel conditions in the Salt River by removing sediment from the channel. Nuisance in-stream vegetation will be removed and replaced with an appropriate composition of managed riparian vegetation. Setback levees will be used on the tributaries to promote natural sediment deposition trends on the alluvial fan. Sediment detention basins will be used to reduce suspended sediment levels. Erosion sources in the upper watershed will also be treated. | Yes | Water Quality |
| North Coast | Humboldt | Sandy Prairie Local Agency Levee System Vegetation Removal and Repair of Displaced Riprap | $ — | | | |
| North Coast | Mendocino | Big River Main Haul Road Phase I Restoration | $ 2,063,630 | The Big River Main Haul Road Phase I Restoration project proposes to:<br>• Remove ecological obstructions (crossing fills, culverts, and stored sediment) at five locations that threaten water quality in the lower Big River watershed<br>• Restore sections of Class II tributary channels<br>• Construct bridges high above the restored channels to maintain access for ongoing restoration, compatible recreational use, and scientific study<br>• Remove invasive weeds that threaten wetland, riparian, and forest habitats in both the Big River and its watershed<br>Four roadway watercourse crossings and one fill-slope failure along the main access road of the park are composed of significant volumes of fill, are actively eroding, and have trapped substantial volumes of sediment (approximately 14,000 cubic yards). Culverts conveying water through the fill prisms were constructed high above the natural stream channel and are too small to convey the 100-year flood. The fill prisms and stored sediments exist in Class II watercourses and represent an ecological obstruction between forested uplands and the Big River estuary and floodplain, which occur 100 to 300 feet downstream of the crossings. Non-native plants have invaded sensitive habitats, impacting listed species such as coho salmon and steelhead trout. | Yes | Water Quality |
| North Coast | Sonoma | Copeland Creek Enhancement and Restoration Project | $ 13,314,257 | • California Natural Resources Agency 2011 Environmental Enhancement and Mitigation Program Grant: $345,480<br>• Local Funds $ 4,220,647<br>• DWR IRWM Plan Proposition 84 Round 1 Grant Program: $1,000,000. (Sub-agreement of grant award to County of Humboldt – North Coast IRWM Plan) | Yes | Ecosystem |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| North Coast | Sonoma | Defining Summer Low Flow Channels in Engineered Streams | $ 450,000 | The overall goal of this project is to reduce sediment delivery and facilitate sediment movement in engineered stream reaches to be determined by this project. Possible candidates that have active watershed-based approaches and are familiar to the IRWM Plan include Corte Madera Creek, Lagunitas Creek, Guadalupe River, and Alameda Creek. Sediment management will be accomplished by improving and/or removing flood control structures, and stabilizing stream banks and creating or restoring thalwegs. These multiple efforts will improve summer habitat for the nationally threatened steelhead trout. | Yes | Water Quality |
| North Coast | Sonoma | Laguna de Santa Rosa Sedimentation Study and Projects | $ 20,000,000 | The California Coastal Conservancy will assist the Sonoma County Water Agency with the proposed Phase II of the Laguna de Santa Sedimentation Study. Phase II will involve the assessment for and preparation of detailed designs for one or more projects on publicly owned land that will reduce effects of sedimentation for habitat restoration and flood control. Phase II will include preparation of the environmental documentation for the chosen project(s). Phase II follows the nearly completed Phase I of this study, which was initiated because Sonoma County Water Agency requested the USACE to determine if siltation has impacted the ability of the Laguna to provide wildlife habitat and to act as a flood control basin. Phase I, therefore, evaluates the causes of sedimentation and assesses restoration needs. | Yes | Water Quality |
| North Coast | Sonoma | Multi-Benefit Flood and Runoff Management for Sonoma Valley | $ 10,000,000 | This project addresses longstanding flooding, water supply, and water quality needs in the Sonoma Creek watershed, including the City of Sonoma, a Phase II stormwater municipality. The proposed activities continue many years of work toward achieving water management goals in the watershed. Aimed at reducing long-term environmental effects of ditching, draining, and paving, the project will:<br>• Reduce volume and velocity of storm runoff delivered to streams<br>• Enhance riparian corridors and increase canopy coverage<br>• Implement runoff BMPs on residential, vineyard, and horse properties, both in the upper watershed and along streams<br>• Reduce suspended sediment loads<br>• Increase information sharing with our citizen and agency communities | Yes | Water Supply |
| North Coast | Sonoma | Multi-Benefit Stormwater Management and Groundwater Recharge for Petaluma River Watershed | $ 10,000,000 | This project will provide 100-year flood protection and increase groundwater recharge potential. | Yes | Water Supply |
| North Coast | Sonoma | Multi-Benefit Stormwater Management and Groundwater Recharge for the Santa Rosa Plain | $ 10,000,000 | Core Objectives:<br>• Flood Hazard Reduction - Improve management of stormwater that contributes directly or indirectly to downstream flooding, thereby reducing flood hazards<br>• Groundwater Recharge - Increase beneficial recharge of groundwater, whether or not that recharged groundwater is directly accessible as water supply | Yes | Water Supply |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| North Coast | Sonoma | Russian River Groundwater Banking (Artificial Storage and Recovery) Study | $ — | The Groundwater Banking Feasibility Study was initiated in 2010 for banking excess winter water from the Russian River in the Sonoma Valley groundwater basin for storage and use in the summer or during drought period. Conceptually, a groundwater banking program would divert and transmit surplus Russian River water produced at the existing facilities and store that water in the Santa Rosa Plain Groundwater Basin and/or Sonoma Valley Groundwater Basin during wet weather conditions (i.e., the winter and spring seasons), for later recovery and use during dry weather conditions (i.e., the summer and fall seasons) or emergency situations. | Yes | Water supply |
| North Coast | Sonoma | Santa Rosa Creek Ecosystem Restoration Study | $ 20,000,000 | This project studies the restoration needs of the ecosystem and flood management and detention basins. | Yes | Ecosystem |
| North Coast | Trinity | Replacement of Garden Gulch Culvert | $ — | This project will replace the culvert for fish passage. | | |
| North Coast | Trinity | Trinity River Restoration Program | $ — | Program activities include physical habitat modifications to the river, monitoring of river responses, and reviews and recommendations for future modifications or enhancements to current management actions (e.g., flow releases from dams, fishery harvests, hatchery practices). | Yes | Ecosystem |
| North Lahontan | Alpine | Markleeville Creek Restoration Project | $ 220,700 | The goal of the Markleeville Creek Floodplain Restoration Project is to reestablish the natural form and function of Markleeville Creek through the site of the former U.S. Forest Service (USFS) guard station. The Alpine Watershed Group (AWG) proposes to restore the streambed configuration to more closely resemble its natural state, which would improve geomorphic function and restore the floodplain. | Yes | Ecosystem |
| North Lahontan | Lassen | Levee Integrity Program | $ — | Develop a Levee Integrity Program that includes inspection and maintenance. | | |
| North Lahontan | Lassen | Water Storage Study | $ — | Develop on-stream and off-stream water storage to store floodwater and to store water for use during drought conditions. | Yes | Water Supply |
| North Lahontan | Lassen | | $ — | This project will evaluate flooding areas and implement improvements to reduce the potential for residential flooding in Lassen County, City of Susanville, and Susanville Indian Rancheria. | | |
| North Lahontan | Lassen | Honey Lake Shoreline Protection Project | $ — | | | |
| North Lahontan | Lassen | Carroll Street Flood Prevention Project | $ — | The project would construct a retaining wall and riprap and/or acquire the property of Carroll Street homes that are subject to recurring flooding. | | |
| North Lahontan | Lassen | Flood Storage Capacity | $ — | This project studies the need for increases in flood storage capacity in reservoirs and behind dams. | | |
| North Lahontan | Lassen | McCoy Dam Overflow Channel | $ — | | | |
| North Lahontan | Lassen | Levee Upgrades | $ — | This project would minimize impacts of flooding by implementing levee upgrades for waterways and irrigation canals throughout Lassen County. | | |

### Table E-E-1. Local Agency Planned Projects

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| North Lahontan | Lassen | Susan River (Hog Flat to McCoy Dam) | $ — | | | |
| North Lahontan | Lassen | Susan River Parkway Project | $ 3,500,000 | This project will provide bank stabilization and flood control, recreation, and increased habitats. Additionally, the project will create river parkways for conservation efforts. The project includes $0.5 million of flood management components. | Yes | Recreation |
| North Lahontan | Lassen | Susan River Release Valve | $ — | | | |
| North Lahontan | Nevada | Trout Creek Restoration Project (Reaches 4 and 5) - Truckee | $ 10,500,000 | The grant funds requested would construct and restore Reaches 4 and 5 of Trout Creek. Restoration of the two reaches would traverse lands owned by Holiday Development and would require infrastructure improvements to create the optimal stream restoration alignment. Infrastructure improvements include moving the balloon track, adjusting the Glenshire Drive alignment, and constructing two new bridges across Trout Creek to support the relocated balloon track. | Yes | Ecosystem |
| North Lahontan | Nevada | Trout Creek (Truckee) Flood Control and Restoration | $ 2,743,000 | This project includes bank stabilization, stream environment zone restoration, enhanced fish habitat, newly created riparian habitat, public outreach and education, improved water quality in the Truckee River, and flood protection for the Truckee River corridor. | Yes | Ecosystem |
| Sacramento River | Butte | Murphy Slough Habitat Restoration | $ — | Restoration includes modifications to existing flood relief structures and bank protection works. | Yes | Ecosystem |
| Sacramento River | Butte | Sutter Butte Flood Control Agency Levee Improvement Plan | $ 177,500,000 | The Improvement Plan includes 44 miles of levee upgrades to reduce flood risk and remove more than 34,000 properties from FEMA Special Flood Hazard Areas. | | |
| Sacramento River | Colusa | Colusa Sub-Reach Wildlife Habitat Restoration Project | $ — | This project proposes the restoration of approximately 251 acres of wildlife habitat on portions of seven tracts within the levees of the Sacramento River between the community of Princeton and the City of Colusa. | Yes | Ecosystem |
| Sacramento River | Colusa | Cooperative Program for Groundwater Studies between the County of Glenn and the Colusa Basin Drainage District | $ — | This program includes investigating the potential for groundwater recharge in conjunction with the operation of flood detention facilities prior to design and construction as part of the Colusa Basin's Integrated Watershed Management Plan. | Yes | Water Supply |
| Sacramento River | Colusa | Integrated Resources Management for Flood Control | $ — | This project consists of three alternatives.<br>• Alternative 1: Construction of 14 detention basins and 10,000 acres of environmental restoration measure<br>• Alternative 2: Construction of 8 detention basins and 10,000 acres of environmental restoration measure<br>• Alternative 3: Construction of 5 detention basins and 10,000 acres of environmental restoration measure | Yes | Ecosystem |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Sacramento River | Colusa | Long-term Flood Management for Colusa Basin | $ — | This project consists of a combination of strategically placed foothill reservoirs and up to 10,000 acres of multipurpose detention basins, catchment basins, and groundwater recharge facilities along the Colusa Drain and/or tributaries to provide the most reasonable technical, environmental, and economical structural solution to significantly remedy the issues of flood control and groundwater recharge within the Colusa Basin. | Yes | Water Supply |
| Sacramento River | Colusa | Sites Reservoir | $ — | This project would provide water supplies in average and dry years for urban, agricultural, and environmental purposes. Sites Reservoir will add flexibility to the State's water management system and can provide unique benefits, which include:<br>• Enhanced water supply reliability for urban, agricultural, and environmental uses<br>• Improved Delta water quality<br>• Mitigation of snowpack storage losses due to climate change<br>• Contribute to flood damage reduction in the Central Valley<br>• Ecosystem restoration actions in the Sacramento River<br>• Dedicated storage that can be adaptively managed to respond to Delta emergencies and help with restoration actions | Yes | Water Supply/ Ecosystem |
| Sacramento River | Colusa | Upper Stony Creek Watershed Project | $ — | In addition to managing watershed resources, the project would provide groundwater recharge and flood control by diverting and transporting peak flows through a series of man-made waterways or pipelines joining Walker Creek and Wilson Creek with the existing gravel sites. | Yes | Water Supply |
| Sacramento River | El Dorado | Addressing Sediment Issues in the Cosumnes American, Bear, and Yuba Rivers (CABY) Region | $ 4,282,853 | Project goals are to demonstrate projects for sediment control, regional sediment monitoring, map of erosion potential with included sediment budgets and sediment transport sources, and outreach and training. | | |
| Sacramento River | El Dorado | Finnon Lake Restoration and Habitat Improvement Project - Georgetown Divide Resource Conservation District | $ 1,501,400 | Restoring Finnon Lake to its original operating capacity of 350 acre-feet while enhancing fishery and aquatic habitats, improving wetland habitat, improving upland forest habitats, and securing a sustainable water supply to combat wildfires. | Yes | Ecosystem/ Water Supply |
| Sacramento River | El Dorado | Hangtown Creek Restoration (South Fork American River Watershed) | $ 24,046,050 | Objectives of this project include:<br>• Develop a comprehensive flood control plan for the City of Placerville<br>• Complete the Hang town Creek Master Plan<br>• Relocate the trunk sewer lines out of the creek channel<br>• Upgrade three sewer lift stations within the Hangtown Creek watershed<br>• Ongoing restoration of Hangtown Creek and its tributaries | Yes | Water Quality |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Sacramento River | El Dorado | Regional Water System Reliability and Conservation Project for American and Yuba river watersheds | $ 18,000,000 | The project would improve reliability of raw water conveyance and storage, and improve water conservation by eliminating seepage and minimizing evaporation; improve and protect raw water quality for downstream municipal and domestic water users; protect fisheries from a damming source of sediment; and increase the capacity of raw water conveyance and storage to meet anticipated future demands. | Yes | Water Quality/ Water Supply |
| Sacramento River | Glenn | Colusa Subreach Wildlife Habitat Restoration Project | $ — | The project develops a strategy for restoration of the ecosystem along the Sacramento River between the community of Princeton and the City of Colusa. | Yes | Ecosystem |
| Sacramento River | Glenn | Design of Recharge and Detention Basins | $ — | The project would continue investigation and design of recharge/detention basins on South Fork Willows Creek and Wilson Creek. | Yes | Water Supply |
| Sacramento River | Glenn | Hamilton City Flood Damage Reduction and Ecosystem Restoration | $ — | The project consists of construction of a setback levee to provide a more reliable form of flood protection to the community and agricultural areas. Degradation of the existing "J" levee would allow for reconnection of the river to the floodplain and restoration of about 1,500 acres of native habitat between the new setback levee and the Sacramento River. | Yes | Ecosystem |
| Sacramento River | Glenn | Integrated Resources Management for Flood Control | $ — | This project has three alternatives. These alternatives include:<br>• Construction of 14 detention basins and 10,000 acres of environmental restoration measure;<br>• Construction of 8 detention basins and 10,000 acres of environmental restoration measure;<br>• Construction of 5 detention basins and 10,000 acres of environmental restoration measure. | Yes | Ecosystem |
| Sacramento River | Glenn | Willows Area | $ — | The project is under development. Alternatives include a nonstructural approach, a structural approach, and a combined approach. The goal of the project is to reduce flood damages to the City of Willows and surrounding agricultural lands while increasing ecological value within the South Fork Willow Creek, North Fork Willow Creek, and Wilson Creek Sub-basins in Glenn County. | Yes | Ecosystem |
| Sacramento River | Glenn | Willows Area Flooding - South Fork Willow Creek Detention Basin | $ — | This project initiates construction of a flood control detention basin on South Fork Willow Creek in Glenn County. The purpose of the facility is to capture periodic floodwater in the upper Colusa Basin before it can cause damage downstream, particularly to homes and infrastructure in and around the City of Willows. | | |
| Sacramento River | Lake | Cache Creek Flow Enhancement Project | $ — | The project would determine mercury and nutrient inputs to Clear Lake to support the development and implementation of water quality protection measures. | Yes | Water Quality |
| Sacramento River | Lake | Middle Creek Project - Wetland Restoration | $ — | This project eliminates flood risk to 18 residential structures, numerous outbuildings, and 1,650 acres of agricultural land while restoring damaged habitat and water quality of the Clear Lake watershed. | Yes | Ecosystem/ Water Quality |
| Sacramento River | Lake | Middle Creek Flood Damage Reduction and Ecosystem Restoration Project | $ 48,000,000 | This project includes restoration of wetlands, reconnection of floodplains, and relocating 18 structures. | Yes | Ecosystem |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Sacramento River | Lassen | Ash Creek Wildlife Area Restoration Project | $ 3,700,000 | The project is a meadow restoration project (2,415 acres) on the lower section of the Ash Creek Wildlife Area and will protect 1,085 acres from further degradation. It will provide flood attenuation and shallow groundwater recharge. | Yes | Water Supply |
| Sacramento River | Lassen | Beaver Creek Meadow Restoration Project | $ 800,000 | The project is a meadow restoration project that will restore approximately 100 acres of a degraded meadow system and will provide flood attenuation and shallow groundwater recharge. | Yes | Water Supply |
| Sacramento River | Lassen | Butte Creek Meadow Restoration Project | $ 350,000 | The project is a meadow restoration project that will restore approximately 150 acres and will provide flood attenuation and shallow groundwater recharge. | Yes | Water Supply |
| Sacramento River | Lassen | Floodplain Restoration at Egg Lake Slough-Lennon Ranch | $ — | The project will enhance and stabilize 0.5 miles of riverbank along Egg Lake Slough, improve habitat conditions, and keep the slough from further degradation and transport of high flows. | Yes | Ecosystem |
| Sacramento River | Lassen | Mountain Meadows Restoration Project | $ 4,700 | This consists of three separate project reaches proposed for meadow restoration to reestablish floodplain function, reduce fine sediment, improve forage production, and enhance habitats for wildlife and aquatic species. | Yes | Water Quality/ Ecosystem |
| Sacramento River | Modoc | Alturas Area Levee and Enhancement Project | $ — | The project would redesign the levee system and channel through the city in a manner that is compliant with USACE standards, protects the infrastructure of the city, minimizes risk of debris accumulation, and improves the aesthetics of the waterway to increase commercial activity in that part of town. | Yes | Recreation |
| Sacramento River | Modoc | Carey Ranch Riverbank Stabilization Project and Riparian Enhancement Project | $ 100,000 | The project will enhance and stabilize several miles of riverbank along the Pit River, improve habitat conditions, and keep the river from further degradation and transport of high flows. | | |
| Sacramento River | Modoc | Diamond Ranch/Canyon Creek Meadow Rehydration Project | $ — | The project will enhance a stream by placing grade-control structures that will be designed to stabilize banks and encourage flood flows to access the floodplain. The project will provide flood protection, groundwater recharge, and habitat enhancement. | Yes | Water Supply/ Ecosystem |
| Sacramento River | Modoc | Green Wing Properties River Bank and Wetlands Restoration Project | $ — | This project consists of riparian and wetland restoration along with watershed improvement in the surrounding upland areas. Beneficiaries of the project include the landowners and general public. | Yes | Ecosystem |
| Sacramento River | Modoc | Haage Ranch Riverbank Stabilization Project and Riparian Enhancement Project | $ 300,000 | The project will enhance and stabilize 1.5 miles of riverbank along the Pit River, improve habitat conditions, and keep the river from further degradation and transport of high flows. | Yes | Ecosystem |
| Sacramento River | Modoc | Hunsinger Draw Meadow Restoration Project | $ 80,000 | The project is a meadow restoration project (30 acres) along Hunsinger Creek that will provide flood attenuation, shallow groundwater recharge, and ecosystem restoration. | Yes | Water Supply/ Ecosystem |
| Sacramento River | Modoc | Parker Creek Restoration and Enhancement Project | $ — | This project proposes to conduct a variety of natural resource treatments, including forest restoration, stream restoration, and habitat enhancement within the Parker Creek watershed. | Yes | Ecosystem |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Sacramento River | Modoc | Proposed Willow Creek Ranch/LLL, Inc. Riparian and Wetland Enhancement Project | $ — | The project will consist of riparian and wetland enhancement along with watershed improvement in the surrounding upland areas. | Yes | Ecosystem |
| Sacramento River | Modoc | Rattlesnake Creek Riparian Enhancement | $ 350,000 | The project will enhance 3 miles of stream by placing grade control structures that will be designed to stabilize banks and encourage flood flows to access the floodplain. The project will provide flood protection, groundwater recharge, and habitat enhancement. | Yes | Water Supply/ Ecosystem |
| Sacramento River | Modoc | Sponseller Ranch Riverbank Stabilization Project and Riparian Enhancement Project | $ 210,000 | The project will enhance and stabilize several miles of riverbank along the Pit River, improve habitat conditions, and keep the river from further degradation and transport of high flows. | Yes | Ecosystem |
| Sacramento River | Nevada | CABY Region Green Infrastructure | $ 300,000 | This is an emerging initiative for green infrastructure to provide attenuation and detention, especially for disadvantaged communities. | | |
| Sacramento River | Nevada | Grass Valley Drainage System Repairs | $ 4,295,500 | This project provides for reduction of sedimentation and localized flooding. | | |
| Sacramento River | Nevada | Protecting the Headwaters: Groundwater Sources and Mountain Meadows | $ 1,306,732 | | | |
| Sacramento River | Placer | American River Basin IRWM Stormwater Flood Management Grant Proposal-Antelope Creek Improvement Project | $ 5,839,747 | The project addresses stormwater flood control on a regional basis in Placer County by integrating upstream- and downstream-related project components into a single project. | | |
| Sacramento River | Placer | Dry Creek Watershed Flood Control and Environmental Enhancement Project - Dry Creek Parkway Reach | $ 5,727,395 | This project will reduce flood damages and enhance environmental quality of the Dry Creek Watershed by purchase of easement and fee interests or real properties within the flood corridor, improving channel and floodplain connectivity by renovation of the existing dam and removal of private non-engineered levees, establishing salmonid spawning habitat, and removing 100 acres of red sesbania in the lower watershed. | Yes | Ecosystem |
| Sacramento River | Placer | Dry Creek Watershed Flood Control and Environmental Enhancement Project – Miner's Ravine | $ 2,800,835 | This project would reduce flood damages and enhance environmental quality of the Dry Creek Watershed by: constructing an off-channel detention basin in Placer County. Riparian and instream habitat improvements would benefit steelhead trout and many other wildlife species. Enhancements include removal of non-native plants, creating riparian habitat, enlarging the stream channel, and allowing for meander and restoration of natural processes, including enhancement of seasonal wetlands. | Yes | Ecosystem |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Sacramento River | Placer | Lakeview Farms Conservation Project | $ 495,527 | This conservation project is being proposed as a collaborative effort with two partners, Lakeview Farms Inc. and Ducks Unlimited, to acquire a conservation easement and improve the floodplain and wetland habitat resources on Lakeview Farms, a 138-acre property south and west of Sheridan along Coon Creek in western Placer County. The County's purchase of a conservation easement on this agricultural rice land is a part of a larger restoration effort at this site, through other funding sources, to restore the habitats that have been destroyed as a result of poor farm management. Wetlands habitat will be reconstructed to the primary benefit of the numerous waterfowl and migratory birds that are found in the area. | Yes | Ecosystem |
| Sacramento River | Placer | Proposed Antelope Creek Flood Control Project | $ 5,839,747 | This is a multi-objective water efficiency and regional flood control improvement project proposed within the Dry Creek Watershed area of the American River Basin. The project will meet multiple planning objectives by improving water supply, water quality, flood protection, ecosystem restoration, and an existing public recreation corridor. Through the design and construction of several on-channel weirs along an existing open-space-protected reach of the creek, the project will provide flood control and flood damage reduction benefits to repeatedly damaged areas of downtown Roseville. Both ecosystem restoration and public recreational opportunities will be enhanced wherever possible within the floodplain of Antelope Creek, which currently includes a multipurpose public trail system. In-stream improvements will include bank recontouring to ensure overbank flows, specific habitat enhancements for fisheries, removal of invasive plant species, and replanting with native species. An interpretive trail sign system is also proposed to help educate the public on the project as they utilize the existing multipurpose trail system. | Yes | Water Supply/ Water Quality/ Ecosystem/ Recreation |
| Sacramento River | Placer | Proposed Regional Cross Canal Watershed Flood and Conservation Easement Project | $ — | In exchange for monetary payment, a qualifying property owner can continue agricultural activities while allowing rice lands to be periodically inundated with water during large winter storm events. This would include rice lands adjacent to Auburn Ravine, Markham Ravine, Pleasant Grove Creek, Coon Creek, Yankee Slough, and their tributaries. The goal of the easement program is to conserve these rice lands and the riparian corridors along existing creeks to the mutual benefit of the Flood Control District and the property owner. Under this program, rice-growing operations in new easement areas would not be altered but rather protected and conserved. Existing wetland and riparian areas adjacent to creeks would be improved and protected, any current waterfowl hunting operations could remain, and the property owner would receive fair market value for the sale of an easement. | Yes | Ecosystem |
| Sacramento River | Plumas | Fitch Canyon Restoration Project | $ — | The project would restore the meadow to reestablish floodplain function and improve habitats for wildlife and aquatic species. | Yes | Ecosystem |
| Sacramento River | Plumas | Integrated Greenhorn Creek Restoration Project | $ 87,910 | Treatment of six project reaches along Greenhorn Creek would include stabilizing eroding stream banks and the channel bed with boulder vanes, bank sloping, and vegetation to reduce sediment and loss of property, and constructing two fish-passable riffle-pool structures to improve fish passage. | Yes | Ecosystem |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Sacramento River | Plumas | Last Chance Creek Phase II Restoration Project | $ 2,867,750 | This project would restore the hydrologic function of 542 acres of meadow to reestablish floodplain, stabilize 7.8 miles of channel along Last Chance Creek to eliminate gullied channel as sediment source, and enhance meadow habitat. | Yes | Ecosystem |
| Sacramento River | Plumas | Red Clover Confluence Restoration Project | $ 128,300 | The project restores the hydrologic function of approximately 2,100 acres of channel/floodplain system using a pond-and-plug technique in Red Clover Valley. The primary project goal is to improve the water and sediment retention functions of the watershed, with objectives focusing on reduced bank erosion, improved water quality, improved fish and wildlife habitat, reduced flood flows, and increased base flows. | Yes | Water Quality/ Ecosystem |
| Sacramento River | Plumas | Rowland-Meadowview Restoration Project | $ 98,500 | The project restores the hydrologic function of 256 acres of meadow along Rowland Creek and Last Chance Creek to reestablish floodplain, eliminate gullied channel as sediment source, and enhance meadow habitat. | Yes | Ecosystem |
| Sacramento River | Plumas | Spanish Creek in American Valley Rehabilitation Project | $ 38,100 | The project includes treatment of three project reaches along Spanish Creek implementing gravel management through removal of gravel bars to expand floodplain capacity; stabilizing eroding stream banks with bank sloping, boulder vanes, and vegetation; and rehabilitating aquatic/riparian habitats. | Yes | Ecosystem |
| Sacramento River | Plumas | Spanish Creek in Meadow Valley Rehabilitation Project | $ 531,050 | The project includes treatment of four project reaches along Spanish Creek, stabilizing eroding stream banks with bank sloping, boulder vanes, and planting vegetation. It also entails the implementation of gravel management through removal of gravel bars to expand floodplain capacity, reduce bedload sediment and bank erosion, and rehabilitate aquatic/ riparian habitats. | Yes | Ecosystem |
| Sacramento River | Plumas | Sulphur-Barry Creek Restoration Project | $ 19,000 | The project reduces sediment and restores floodplain along Sulphur Creek and Barry Creek to reestablish hydrologic function, reduce bed load transport, and eliminate gullied channel as sediment source. | Yes | Ecosystem |
| Sacramento River | Plumas | Upper Dotta Canyon Restoration Project | $ 549,914 | The project includes restoration of 253 acres of meadow floodplain and 2.9 miles of stream channel to reestablish hydrologic function, eliminate gullied channel as sediment source, and enhance meadow habitat potentially utilizing the pond-and-plug technique. | Yes | Ecosystem |
| Sacramento River | Plumas | Yellow Creek - Humbug Valley Restoration Project | $ 388,400 | The project includes restoration of 109 acres of meadow floodplain to reestablish hydrologic function, eliminate gullied channel as sediment source, and enhance meadow habitat. | Yes | Ecosystem |
| Sacramento River | Sacramento | American River Basin IRWM Stormwater Flood Management Grant Proposal – Downtown Combined Sewer Upsizing Project | $ 6,899,208 | The Downtown Combined Sewer Upsizing Project will reduce flood damage in the economically vital downtown area of Sacramento; improve water quality in the Sacramento River through the reduction in raw sewage releases into the source of drinking water for millions of Californians; and protect public health by reducing the likelihood and volume of diluted sewage on public streets and properties. | Yes | Water Quality |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Sacramento River | Sacramento | American River Parkway Plan | $ — | The American River Parkway Plan will provide a guide for land use decisions affecting the Parkway, and the plan specifically addresses the preservation, use (including flood control), development and administration of the Parkway. The plan was most recently updated in 2008. | | |
| Sacramento River | Sacramento | Anticipatory Erosion Control Program | $ — | | | |
| Sacramento River | Sacramento | Arcade Creek Corridor Plan | $ 1,000,000 | This plan identifies numerous remedial and maintenance projects along Arcade Creek and Cripple Creek that will fulfill the goals of the Arcade Creek Watershed Group. The types of projects identified are as follows:<br>• Remove debris jam and flow obstructions<br>• Remove invasive non-native vegetation<br>• Stabilize banks<br>• Improve pipe outfalls<br>• Restore recreational trails<br>• Improve floodplain function<br>• Reconfigure the channel<br>• Control runoff from parking lots<br>• Stabilize swales<br>• Remove sediment and vegetation at creek crossings<br>• Remove concrete-lined channel.<br>Identified projects are located in the City of Sacramento, Sacramento County, and the City of Citrus Heights. | Yes | Recreation |
| Sacramento River | Sacramento | Capital Improvement Projects - Pipelines | $ 5,896,000 | Capital improvement projects include various pipeline improvements within Sacramento to increase pipeline capacities to meet the required design flows for specified flood events. | | |
| Sacramento River | Sacramento | Chicken Ranch Slough - Concrete Channel Lining Rehabilitation | $ 400,000 | Rehabilitation of the Chicken Ranch Slough includes lining the concrete channel to prevent seepage and improve the capacity of the channel for flood control. | | |
| Sacramento River | Sacramento | Community Rating System Public Information Pilot Program | $ 60,000 | This is a pilot program for the new Community Rating System being rolled out to the public. | | |
| Sacramento River | Sacramento | Dry Creek Flood Hazard Mitigation Acquisitions with County Park Department | $ — | The Dry Creek Parkway project is a multi-agency project designed to return an area of Dry Creek floodway to a regional park site and open space. The floodway at this location is very broad, compromising access during flood emergencies. The Parkway project goals and good floodplain management mandate the removal of the remaining residential structures located within the floodway. At this time, 21 residential structures are remaining. | Yes | Recreation |
| Sacramento River | Sacramento | Elder Creek and Gerber Creek | $ 70,000,000 | The North Vineyard Station Drainage Master Plan for Elder Creek and Gerber Creek improvements has a Clean Water Act Section 404 Permit and will improve flood flow conveyance, store peak-flow volume, and enhance habitat. | Yes | Ecosystem |

### Table E-E-1. Local Agency Planned Projects

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Sacramento River | Sacramento | Flood Insurance Promotion | $ 20,000 | The project promotes the flood insurance program. | | |
| Sacramento River | Sacramento | Flood Protection Project | $ 976,773 | | | |
| Sacramento River | Sacramento | Gardenland Flood Management, Habitat Restoration, and Recreation Project | $ 5,140,324 | The Gardenland Sand and Gravel mine site is a 123-acre site on a floodplain terrace located within the designated boundaries of the American River Parkway. Sacramento Area Flood Control Agency (SAFCA) proposes to acquire the site, restore it, and incorporate it into the publicly owned American River Parkway. The site has been mined for decades and is now used for sorting, distributing, and recycling soil and construction debris. The dominant feature is a steep-sided, 62-acre mine pit that is now a lake, which is hydraulically linked to the American River through alluvial soil. It hosts non-native fish and vegetation, and the graded soils around the pit are either bare or host non-native vegetation and weeds. The site operators mow and disc much of the property to prevent the establishment of vegetation, particularly woody vegetation that would inhibit mining operations. Acquisition of the site would remove two occupied dwellings, along with various structures and equipment, from the floodway. It would provide an opportunity to restore the site and eliminate the ongoing potential for sedimentation and water pollution from the onsite storage of piles of soil and debris of unknown origin. | Yes | Water Quality |
| Sacramento River | Sacramento | Improve the County Automated Local Evaluation in Real Time (ALERT) System of Stream and Rain Gauges | $ 500,000 | The project provides for stream and rain gauge installations to improve the County ALERT system. | | |
| Sacramento River | Sacramento | Improved Flood Inundation and Evacuation Plan for Probable Maximum Flow from New Spillway at Folsom Dam | $ 200,000 | The project provides for development of an improved flood inundation and evacuation plan as a result of the construction of a new spillway at Folsom Dam. | | |
| Sacramento River | Sacramento | Joint Use Detention-Park Basins on Laguna Creek | $ — | The Vineyard Springs Comprehensive Plan was adopted by the Board of Supervisors in about 2000, including a drainage master plan. Subsequently, the drainage plan was revised to be more environmentally sensitive. A few detention basins are planned for joint use by Southgate Recreation and Park District. | | |
| Sacramento River | Sacramento | Mayhew Slough - Concrete Channel Lining Rehabilitation | $ 100,000 | The project provides for rehabilitation of Mayhew Slough by lining the concrete channel to prevent seepage and to improve the capacity of the channel for flood control. | | |
| Sacramento River | Sacramento | Pasa Robles Drive - Concrete Channel Lining Rehabilitation | $ 250,000 | The project provides for rehabilitation of Pasa Robles Drive by lining the concrete channel to prevent seepage and to improve the capacity of the channel for flood control. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Sacramento River | Sacramento | Pump Station Improvements and Rehabilitation | $ 3,000,000 | The project provides for rehabilitation of the pump station to improve its pumping capacity. | | |
| Sacramento River | Sacramento | Sacramento River Mile 75.1 (Pritchard Lake Pump Station) | $ 7,000,000 | The project provides for pump station improvements at post mile 75.1 along the Sacramento River. | | |
| Sacramento River | Sacramento | South Sacramento Habitat Conservation Plan | $ — | The South Sacramento Habitat Conservation Plan (SSHCP) provides a regional approach to balancing development against conservation and protection of habitat, open space, and agricultural lands. The SSHCP protects 30 species of plants and wildlife, including 10 species that are listed as threatened or endangered under the Federal Endangered Species Act (FESA), the California Endangered Species Act (CESA), or both. The SSHCP also protects vernal pool, wetland, and stream habitats that are subject to the Federal Clean Water Act (CWA) and California's Porter-Cologne Water Quality Control Act. The SSHCP also seeks a programmatic Streambed Alteration Agreement under California Department of Fish and Wildlife (CDFW--formerly Department of Fish and Game) Code Sections 1600, et seq. The primary mechanism for conservation established under the SSHCP is its Reserve System, which will conserve habitat that will be managed and monitored to achieve the biological goals and objectives for the protected species. | Yes | Ecosystem |
| Sacramento River | Sacramento | Stormwater Source Control in the Cosumnes American Bear and Yuba Region - American Rivers | $ 1,020,000 | This project will construct green infrastructure stormwater facilities to reduce sediment, pollutants, and erosive peak flows, while increasing groundwater infiltration and storage in the Yuba River watershed. It will also provide a highly exportable, innovative solution for controlling downstream flood risk. The project will be constructed at two public sites in the disadvantaged communities of Nevada City and Grass Valley—the Nevada County Rood Administrative Center and the Yuba River Charter School. The proposed approaches mimic nature's way of dealing with stormwater and provide not only economic, water quality, and hydrology benefits, but also aesthetic and habitat values. In addition, the project has an innovative and robust monitoring component to quantitatively measure benefits, incorporate education and outreach activities for a range of audiences, and coordinate with other such efforts throughout the state to promote early learning and replication throughout the CABY watersheds and the greater Sierra Nevada region. | Yes | Water Quality |
| Sacramento River | Sacramento | Strong Ranch Slough - Concrete Channel Lining Rehabilitation | $ 1,200,000 | This project rehabilitates Strong Ranch Slough by lining the concrete channel to prevent seepage and improve the capacity of the channel for flood control. | | |
| Sacramento River | Shasta | Burney Gardens Restoration Project | $ 1,600,000 | The project is a meadow restoration project of an open meadow area (estimated budget is $75,000) and includes the restoration of an encroached lodgepole meadow area (estimated budget is $1.5 million). Removal of biomass and sale of this product is anticipated to pay for the restoration of the encroached meadow area. The project also provides flood attenuation and shallow groundwater recharge benefits. | Yes | Water Supply |

### Table E-E-1. Local Agency Planned Projects

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Sacramento River | Shasta | Clover Creek Preserve | $ 10,597,753 | The Clover Creek Preserve project proposes to restore and conserve approximately 128 acres of land that had been slated for residential development. Specific components of the project include the creation of a 46+ acre detention basin/floodplain area (with 10 to 15 acres of associated seasonal wetland, marsh, perennial pond, and riparian habitat); the enhancement or creation of 25 to 40 acres of oak woodland and 40 to 55 acres of grassland with scattered vernal pools; and the construction of bike paths, walking trails, a parking area, and habitat interpretive areas. | Yes | Ecosystem/ Recreation |
| Sacramento River | Shasta | McArthur Swamp Restoration and Management Planning Project | $ 600,000 | The project would develop a restoration design plan that would use surface flow water to restore seasonal wetlands and vernal pools in the project area. | Yes | Ecosystem |
| Sacramento River | Solano | Dixon Area Joint Powers Authority Project | $ 14,000,000 | | | |
| Sacramento River | Solano | Reclamation District (RD) 2068 Data Collection and Supervisory Control and Data Acquisition (SCADA) for Flood Operations | $ 500,000 | | | |
| Sacramento River | Sutter | Flood Control | $ — | The goals of this project are to<br>• Evaluate functionality of flood control infrastructure<br>• Identify ways to allow floodwaters onto floodplains<br>• Identify flood control off-stream storage<br>• Improve infiltration ability of flood-prone areas<br>• Protect banks and levees of channels<br>• Determine cumulative effects of existing wetland and riparian restoration projects on flooding. | | |
| Sacramento River | Sutter | Floodplain Restoration Levee Setback Options | $ — | | | |
| Sacramento River | Sutter | Levee Reconstruction Recommendations | $ 22,000,000 | | | |
| Sacramento River | Sutter | Lower Feather River Watershed Management Plan (WMP) | $ — | The Feather River Watershed Forum was established to implement watershed management and restoration activities in the Feather River watershed of northern California. | Yes | Ecosystem |
| Sacramento River | Sutter | Sacramento River Bank Protection Project | $ — | This project addresses long-term erosion protection along the Sacramento River and its tributaries. Within the Sacramento area, bank protection measures typically consist of large angular rock placed to protect the bank, and then a layer of soil/rock material is placed to allow vegetation to grow back on the bank. In addition, dead trees may be added to the mixture for additional habitat value. | | |
| Sacramento River | Sutter | Stream Systems Hillslope Processes Mining | $ — | One of the goals of this effort is to evaluate stream banks/levees and floodplain connectivity. | Yes | Ecosystem |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Sacramento River | Sutter | Sutter Basin Feasibility Study | $ — | The project assesses flood risk, ecosystem restoration, and recreation issues. | Yes | Ecosystem |
| Sacramento River | Sutter | West Yuba City Master Drainage Study - Improvement Alternative 5 | $ 38,800,000 | Alternative 5 includes two detention basins. One is located at the north end of the LOC just south of Pease Road and one located just south of Bogue Road and west of the LOC. There would also be a 50-cfs (firm capacity) pump station associated with each detention basin. | | |
| Sacramento River | Sutter | West Yuba City Master Drainage Study - Preferred Project | $ 137,000,000 | RP identifies the specific drainage facilities needed to serve the West Yuba City area at buildout. | | |
| Sacramento River | Tehama | Columbia and Kirkwood Bridge Replacements | $ 1,200,000 | Bridges on Kirkwood Road and Columbia Avenue will be replaced due to sheet flow flooding that could have an impact on wells. | | |
| Sacramento River | Tehama | Deer Creek Levee widening (upstream of SR 99) | $ — | Reconstructing and setting back the levee on both sides of the stream would:<br>• Increase the floodplain and increase the transitory storage capacity<br>• Restore channel form and function to improve operation and maintenance (O&M) and facilitate flood damage reduction<br>• Remove barriers to fish passage,<br>• Set back levees to connect rivers to floodplains<br>• Restore channel alignment<br>• Encourage natural physical geomorphic processes including channel migration and sediment transport,<br>• Protect critical infrastructure corridors from floodwaters (MA-069)<br>This project is an effort to respond to the flooding and habitat problems in lower Deer Creek and explore the concept of deliberately using the floodplain of Deer Creek to accommodate part of the flood flows in a controlled fashion. With careful planning and adequate protection for vulnerable property and infrastructure, this project will seek to reduce flood flows and allow the channel to reestablish some of its irregular, hydraulically rough, and ecologically complete pre-levee condition. | Yes | Ecosystem |
| Sacramento River | Tehama | Jewett and Burch Creek Analysis Project | $ — | | | |
| Sacramento River | Tehama | La Barranca and Blackberry Island | $ 5,590,050 | The proposed project is a comprehensive floodplain reconnection and restoration project (Phase III) within the Sacramento River National Wildlife Refuge where 450 acres on the La Barranca Unit and 50 acres on the Blackberry Island Unit will be restored. Restoration includes the removal of gravel pits, removal of a 900-foot private levee and roads to reconnect the river and its floodplain, control invasive weeds, and replant with native riparian species. The reconnection will improve floodplain storage, reduce peak flood flows, and protect property. | Yes | Ecosystem/ Water Supply |
| Sacramento River | Tehama | Recharge Study Implementation | $ — | | | |
| Sacramento River | Tehama | Red Bluff River Park Gravel Removal Project | $ — | | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Sacramento River | Yolo | Bridge District Levee Access Road | $ 4,500,000 | The project would develop a levee maintenance and flood-fighting access road, spanning 3,250 linear feet (0.6 mile) on top of the levee crown, from the south side of the Tower Bridge to the future Mill Street, north of U.S. Highway 50. The proposed access road and off-road amenities would also serve as a recreational trail by allowing controlled use by bicyclists, pedestrians, and other recreationists. The proposed project is part of the Bridge District Specific Plan. | Yes | Transportation |
| Sacramento River | Yolo | Buckeye Creek Erosion/Flood Management Project | $ — | Erosion of the banks along Buckeye Creek west of Interstate 5 is causing sediment deposition and flooding on property north of the unincorporated town of Dunnigan. An assessment of the causes of erosion and determination of measures to effectively mitigate or minimize the erosion is needed to arrest the problem and preserve the watershed | | |
| Sacramento River | Yolo | Cache Creek Off-Channel Detention Basin Projects | $ — | | | |
| Sacramento River | Yolo | California Highway Patrol Academy Site Project | $ 10,000,000 | | | |
| Sacramento River | Yolo | Caltrans Highways Hydraulic Impact Assessment Program | $ — | | | |
| Sacramento River | Yolo | Cities-County Storm Drainage Criteria Update Program | $ — | | | |
| Sacramento River | Yolo | City of Winters Storm Drainage Diversion to Putah Creek Project | $ — | | | |
| Sacramento River | Yolo | Clarksburg Levee Improvement Project | $ — | Reclamation District (RD) 999 needs funding for 32.4 miles of geotechnical evaluations of levees that protect the unincorporated town of Clarksburg. The evaluations are necessary to determine the potential for through-seepage, under-seepage, or other levee weaknesses that might lead to levee failure. RD 999 also will need funding to implement necessary improvements based on the geotechnical evaluations. FEMA is requiring these evaluations and improvements as part of its process to upgrade Yolo County's Digital Flood Insurance Rate Maps (FIRMs). In addition, RD 999 needs to grade the landside of its levees to a 2:1 slope and grade the waterside of its levees to a 3:1 slope. RD 999 also needs to replace its 80-year-old pumping infrastructure. RD 307 needs funding for geotechnical evaluations of levees that help protect Clarksburg and the Sacramento Regional Sanitation District facilities. RD 307 also urgently needs funding to repair erosion sites on 6,500 linear feet within 6.6 miles of levees that help protect Clarksburg and the Sacramento Regional Sanitation District's Northwest Interceptor project. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Sacramento River | Yolo | Clear Lake Operations Evaluation Program | $ — | During the winter months, Cache Creek Dam releases are dictated by the Gopcevic decree. Yolo County Flood Control and Water Conservation District (FCWCD) and Lake County FCWCD have discussed the possibility of modifying these operational rules under certain conditions to benefit both Yolo County and Lake County interests. These changes could be coupled with some physical modifications at the Grigsby Riffle. These actions could reduce peak flood flows in Cache Creek by about 4,000 cfs on the levees near Woodland, while also providing flood relief to Clear Lake residents. Additionally, reoperations of the Cache Creek Dam could provide a significant amount of water supply in certain hydrologic year types. | Yes | Water Supply |
| Sacramento River | Yolo | County Roads Hydraulic Capacity Assessment Program | $ — | | | |
| Sacramento River | Yolo | Creation of Flood Management Division or Separate Entity | $ — | | | |
| Sacramento River | Yolo | Deep Water Ship Channel Navigation Levee Repair | $ — | Correct deficiencies, protect against under seepage, and maintain the Deep Water Ship Canal Levees to current standards for FEMA 100-year and urban levee 200-year levels of flood protection. Physical improvements may include, but are not 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, and levee setbacks. | Yes | Transportation |
| Sacramento River | Yolo | Dry Creek Bank Stabilization Project | $ — | | | |
| Sacramento River | Yolo | Dunnigan Area Storm Drainage/Flood Management Project | $ — | | | |
| Sacramento River | Yolo | Elk Slough Reclamation Pumping Plant | $ — | The existing pumping plant is 80 years old. The project would replace three old pumps with four new pumps and drives. This project will increase pumping efficiency, reduce cost, increase reliability, and maintain the existing pumping capacity. | | |
| Sacramento River | Yolo | Esparto Storm Drainage/Flood Management Project | $ — | Land within Esparto and adjacent lands that are planned for growth are subject to flooding from Lamb Valley Slough as a result of significant storm events. The flooding is likely due to a combination of the capacity limitations from bridge structures, Lamb Valley Slough, and South Fork Willow Slough. A flood control master plan is needed to determine the levee, channel, and bridge improvements needed to mitigate the existing flood hazards and to determine what additional flood control measures are needed to allow for implementation of the Yolo County General Plan. A funding strategy is needed to pay for maintenance activities and the portions of flood control improvements that have no nexus to new development in Esparto. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Sacramento River | Yolo | Flood Emergency Preparedness and Hazard Classification Program | $ — | | | |
| Sacramento River | Yolo | Huff's Corner Levee Repair Project | $ — | Erosion control at a critical site within a 2,500-foot levee section on the south bank of Cache Creek. The section stretches from Interstate 5 upstream to high ground at a location known as Huff's Corner. Failure of this levee could result in 1 to 4 feet of flooding in Woodland and the surrounding unincorporated area, affecting 15,000 residents. Control of erosion at this site is a short-term solution. Yolo County continues to work with the City of Woodland and other entities on a long-term solution to improve flood protection in this area | | |
| Sacramento River | Yolo | Knaggs Ranch Acquisition | $ 15,107,500 | The project consists of the purchase of the 2,622-acre Knaggs Ranch property and its preservation for agricultural conservation, flood protection, and wildlife habitat. The project would prevent development on 30% of Elkhorn Basin adjacent to Central Valley Flood Control Project (CVFCP) levees, which are part of an important flood water retention and conveyance system. With land on the other side of the Sacramento River rapidly urbanizing, protection of this site provides an important relatively undeveloped area that might flood during extreme flood events releasing pressure on other parts of the flood control system possibly preventing the flooding of nearby urban areas such as the Natomas area. The site provides habitat of statewide importance for the Federal- and State-listed giant garter snake (Threatened), the State-listed Swainson's hawk (Threatened), wintering waterfowl, Sacramento splittail, and Chinook salmon. The site includes 850 acres within the Yolo Bypass. | Yes | Ecosystem |
| Sacramento River | Yolo | Knights Landing Levee Improvement Project | $ — | Knights Landing Ridge Drainage District and Maintenance Area No. 6 need funding for geotechnical evaluations of the 12 miles of levees that protect the unincorporated town of Knights Landing. The evaluations are necessary to determine the potential for through-seepage, under-seepage, or other levee weaknesses that may lead to levee failure. RD 108 and Maintenance Area No. 6 also will need funding for necessary improvements identified by the geotechnical evaluations. | | |
| Sacramento River | Yolo | Knights Landing Storm Drainage and Flood Management Project | $ — | RD 730 has requested new pumping infrastructure to pump stormwater and floodwater from the Knights Landing Ridge Cut Canal, benefiting existing and proposed residential areas in Knights Landing. RD 730 operates south of Knights Landing to Road 102. | | |
| Sacramento River | Yolo | Levee Maintenance Fee Structure Assessment | $ — | This project will assess the Levee Maintenance District fee structure and funding opportunities in relation to maintenance demands, and will work with DWR to evaluate and recommend solutions. The Local Agency Formation Commission municipal service reviews Levee Maintenance Districts to initiate changes as appropriate. This review should occur every 5 years, but the last review was completed in March 2005. | | |
| Sacramento River | Yolo | Mace Boulevard Bridge Improvement Project | $ — | The capacity under the Mace Boulevard Bridge over Putah Creek east of Davis is considered to be too low. The hydrologic studies associated with this project would help to determine the appropriate capacity. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Sacramento River | Yolo | Madison Storm Drainage/Flood Management Project | $ — | The unincorporated town of Madison floods periodically from storm runoff entering the town from Cottonwood Slough, the South Fork Willow Slough, and general overland flow from west and north of the town. During these events, homes are flooded and the sewer system is overtaxed. Yolo County was to update its General Plan by 2008, and the updated plan might indicate the potential for some growth in the community. The Caltrans Highway 16 Safety Project, scheduled for completion in 2009, might provide an opportunity to partially address this flood hazard. The residual flooding that persists after implementation of the Highway 16 project needs to be addressed. | | |
| Sacramento River | Yolo | Outfall Channel Environmental Enhancement Project | $ — | The channel between the south levee of the current Cache Creek Settling Basin and the south levee of the Settling Basin that existed until 1992 forms the Outfall Channel, which is approximately 2 miles in length and is the drainage channel for the City of Woodland and the agricultural land within the watershed adjacent to the city. The City of Woodland, by implementing its Storm Drainage Master Plan, will provide stormwater quality treatment upstream of the Outfall Channel before the stormwater is commingled with storm runoff from the agricultural area. The land between the new and old levees and outside the existing outfall channel offers opportunity for significant aquatic habitat enhancement in conjunction with water quality treatment of the drainage water. | | |
| Sacramento River | Yolo | Putah Creek Bank Stabilization Project | $ — | | | |
| Sacramento River | Yolo | Putah Creek Diversion Dam Vegetation Removal Project | $ — | Channel capacity is substantially below design capacity of Putah Diversion Dam. This might cause the potential for overtopping of the dam, dam failure, and disruption of water supply. Control of invasive weeds (especially arundo and Himalayan blackberry) from Putah Diversion Dam to Winters would restore much of the design capacity. | | |
| Sacramento River | Yolo | Reconciliation of Cache Creek Settling Basin Future Modifications and "Original" South Levee Project | $ — | | | |
| Sacramento River | Yolo | Sacramento Bypass-Yolo Bypass Levee Repair | $ — | | | |
| Sacramento River | Yolo | Sacramento River Deep Water Ship Channel 35-Foot Deepening Project | $ 60,000,000 | This project involves both deepening the Sacramento River Deep Water Ship Channel to a depth of 35 feet mean lower-low water (MLLW) and widening in selective areas from river miles (RMs) 0.0 to 35.0, completing the construction that was suspended in 1990. It also includes maintenance dredging from RMs 35.0 to 43.4 to return that previously constructed portion of the channel to its 35-foot depth. | | |
| Sacramento River | Yolo | Sacramento River Bank Protection Program Setback Levee Project | $ 10,000,000 | Purpose of the project is to provide protection to the existing levee and flood control facilities of the Sacramento River Flood Control Project (SRFCP). The project currently includes an additional 80,000 linear feet of bank protection. | | |

### Table E-E-1. Local Agency Planned Projects

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Sacramento River | Yolo | Sacramento River Levee Rehabilitation Project (Merritt Island) | $ — | This project provides for the rehabilitation and water-side erosion repair of damage from the 2007 flood. The levees of RD 150 and Merritt Island along the Sacramento Riverbank, Sutter Slough bank, and Elk Slough bank sustained more than 14,000 feet of wave wash/erosion damage. | | |
| Sacramento River | Yolo | Sacramento River Levee Rehabilitation Project (RM 69.9 RD 827) | $ — | RD 827 needs funds to fix a critical erosion site at RM 69.9. No levee break analysis has been completed to determine what would flood if this levee fails. | | |
| Sacramento River | Yolo | Sacramento River Levee Rehabilitation Project (West Sacramento) | $ — | | | |
| Sacramento River | Yolo | Sacramento River Levee Repair | $ — | | | |
| Sacramento River | Yolo | Sacramento River West Bank Levee Integrity Program | $ — | Levee Maintenance Districts need funding for geotechnical evaluations of all Sacramento River levees not included in the West Sacramento, Knights Landing, and Clarksburg levee improvement projects. These levees protect important agricultural lands. The evaluations are necessary to determine the potential for through-seepage, under-seepage, or other levee weaknesses that might lead to levee failure. | | |
| Sacramento River | Yolo | Slip Repair | $ 10,660,000 | The West Sacramento Slip Repair Project includes raising and strengthening about 5 miles of existing levees on the east side of the Yolo Bypass and south side of the Sacramento Bypass to provide a 200-year level of flood protection to West Sacramento. Construction was completed in 2005, but slips developed during high water in 2006. Design and construction are currently underway to repair the damaged levee sections at the time of this report. | | |
| Sacramento River | Yolo | Small Sloughs and Creeks Invasive Vegetation Removal Program | $ — | Conveyance capacities of small creeks and sloughs have been reduced and could become even more reduced by invasive plants, including giant reed (arundo) and tamarisk. A vegetation removal program is planned to be initiated to maintain flood conveyance capacity. | | |
| Sacramento River | Yolo | Southport Sacramento River Environmental Improvement Plan Project | $ 150,000,000 | West Sacramento Area Flood Control Agency is proposing the measures to be implemented along 6 miles of the levee that runs along the west bank of the Sacramento River from the Barge Canal to the South Cross Levee. | | |
| Sacramento River | Yolo | Sutter Bypass Vegetation Removal Project | $ — | Vegetation removal in the Sutter Bypass will be performed, consistent with habitat restoration activities. Sutter Bypass is losing capacity because of vegetation; water that is not captured in the Sutter Bypass can put additional pressure on the Yolo Bypass and downstream levees. | | |
| Sacramento River | Yolo | Sutter Slough Erosion Control and Pumping Infrastructure Improvement Project | $ — | | | |
| Sacramento River | Yolo | The Rivers Site Project | $ 20,000,000 | | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Sacramento River | Yolo | Tributaries Detention Basins Project | $ — | | | |
| Sacramento River | Yolo | Watershed Management Program | $ — | | | |
| Sacramento River | Yolo | West Sacramento General Reevaluation Report | $ 10,000,000 | The Reevaluation Report provides a thorough, State- and local-funded review of the West Sacramento flood risk management system. Based on the current Federal standards, multiple deficiencies have been found in the Federal levee system that protects the city, with the predominant dangers being seepage, stability, and erosion. | | |
| Sacramento River | Yolo | West Sacramento Levee Improvement Project or West Sacramento Flood Protection Project | $ 460,000,000 | | | |
| Sacramento River | Yolo | West Sacramento Levee Monitoring and Maintenance Program | $ — | | | |
| Sacramento River | Yolo | West Sacramento South Cross Levee Repair | $ — | This project will correct deficiencies, protect against under-seepage, and maintain the West Sacramento South Cross Levees to current standards for FEMA 100-year and urban levee 200-year levels of flood protection. Physical improvements might include, but would 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, and levee setbacks. | | |
| Sacramento River | Yolo | Willow Slough Levee Improvement Project | $ — | This project provides the Willow Slough levee improvements, including associated habitat restoration, necessary to protect the town of Madison and Highway 16 from flooding. | | |
| Sacramento River | Yolo | Woodland Area Flood Management Project | $ — | This project addresses the public outreach and technical analysis necessary to identify a long-term solution to Cache Creek flooding and provide at least 100-year flood protection to the City of Woodland and surrounding areas, with implementation of a publicly supported solution. | | |
| Sacramento River | Yolo | Yolo and Tisdale Bypasses Sediment Removal Program | $ — | This project will remove sediment that is restricting the capacity of the Yolo Bypass and the Tisdale Bypass. | Yes | Water Quality |
| Sacramento River | Yolo | Yolo Bypass 2-D Hydraulic Modeling Project | $ — | This project would provide funding to support the following actions:<br>• Determine which agency will be responsible for maintaining and updating the California Bay-Delta Authority (CBDA)-funded RMA-2 hydraulic model as Bypass projects are completed<br>• Conduct long-term management of the model<br>• Enable project proponents to pay for input of project data to run the model for specific projects | | |
| Sacramento River | Yuba | External Flood Source Flood Protection Projects | $ 35,700,000 | Four levee improvement alternatives have been identified as part of this project. The improvement alternatives will mitigate the flooding issues associated with the City of Wheatland General Plan Area. | | |

### Table E-E-1. Local Agency Planned Projects

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Sacramento River | Yuba | Levee Geotechnical Evaluation for RD 10 | $ 2,340,000 | Work to date has focused on the Lower Feather River, the Yuba River, Upper Bear River, Western Pacific Interceptor Canal, and the Lower Bear River (Bear-Feather Setback Levee). The Levee Reliability Investigation project will extend the area studied to include the levees surrounding Reclamation District 10. | | |
| Sacramento River | Yuba | New Bullards Bar Outlet Capacity Increase | $ 50,000,000 | The purpose of this project is to reduce Yuba River peak flood flows by creating more usable flood storage space in New Bullards Bar Reservoir. This will be accomplished by increasing the outlet capacity so that more water can be evacuated from the reservoir in advance of a peak flood flow. | | |
| Sacramento River | Yuba | New Bullards Bar Reservoir Reoperation Manual | $ 500,000 | The purpose of this project is to update the USACE Flood Operations Manual so that it more accurately represents whatever changes are needed in operation. This manual will be used as the guideline for operating New Bullards Bar Reservoir. | | |
| Sacramento River | Yuba | New Colgate Powerhouse Tailwater Depression | $ 8,000,000 | The primary purpose of this project is to improve the flood protection capability of New Bullards Bar Reservoir. This will be accomplished by the Tailwater Depression limit allowing the Colgate Powerhouse to operate for a longer period of time during a major flood event. This will allow more water to be evacuated from New Bullards Bar Reservoir in advance of a peak flow and will allow for peak-flow releases from the New Bullards Bar Reservoir. | | |
| Sacramento River | Yuba | Regional Flood Management Agency | $ 500,000 | In response to flooding risk in Yuba County, the Yuba County Water Agency and other Yuba County flood control agencies are considering the creation of a Yuba County Flood Control Agency (YCFCA) through a Joint Exercise of Powers Agreement to the region for increased flood protection along the Feather and Yuba rivers. | | |
| Sacramento River | Yuba | Yuba Gold Fields Project - Levee Reach 7 | $ 45,000,000 | | | |
| Sacramento River | Yuba | Bear River North Levee Rehabilitation Project | $ 14,700,000 | A Problem Identification Report was completed by RD 2103 in 2006, which identified under-seepage deficiencies with the Bear River levee. The Problem Identification Report and subsequent foundation investigations and other studies of the levee have identified four deficiencies that should be addressed to comply with standards of the USACE and State Reclamation Board. Three of these deficiencies will be addressed by the proposed project:<br>• Under-seepage: Construct soil-cement-bentonite cutoff walls (a total of 18,000 feet) to depths ranging from 30 to 70 feet (after degrading the levee). Most of the slurry wall (approximately 14,500 lineal feet) will be constructed along the Bear River right bank levee east of Highway 65.<br>• Complete Existing Seepage/Stability Berm: Add a 100-foot section of seepage/stability berm between Highway 65 and access road embankment to expand the existing berm that was constructed from 1997 to 2000.<br>• Perform Local Levee Repair: Address a potential leakage source near Sta.390+70; a 150-foot section of levee will be degraded to natural surrounding grade on the water side and then reconstructed. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Sacramento River | Yuba | Forecast - Coordinated Operations | $ 1,500,000 | This project will coordinate flood control operation of Lake Oroville and New Bullards Bar Reservoir by preliminary release of stored water in years of high rain and snowfall. Use of new gauging stations, refined forecasting methods, and a Decision Support System will improve coordinated operations during flood years. | | |
| Sacramento River | Yuba | North Drainage Basin "C" Regional Detention Pond and Pump Station No. 10 Construction - RD 784 | $ 15,469,960 | This project will allow the Regional Detention Pond to be drained between storm events. The current system can drain only a portion of the water, that which can be drained using gravity. This reduces the system capacity by 60%. The work includes the pump station, backup generator, security structures, outfall to the Feather River, motor control center, Supervisory Control and Data Acquisition (SCADA) system, and minor grading on the regional detention pond. | | |
| Sacramento River | Yuba | Yuba County Levee Project | $ 750,000,000 | This project includes analysis and improvement of 75 miles of levee within RD 10, RD 784, RD 817, RD 2103, and the Marysville Levee District with the near-term goal of 200+-year level of protection for urbanized areas and a 100-year level of protection for rural areas. There are ongoing efforts for levee improvements in the RD 784 and RD 2103 areas, along with a USACE Yuba Basin Feasibility Study that covers RD 784 and Marysville. Costs for these improvements will be estimated from ongoing efforts. | | |
| San Francisco Bay | Alameda | Arroyo de la Laguna Improvement Project - Verona Reach | $ 2,170,000 | This project addresses conceptual alternatives analysis of flood control solutions along the Arroyo del la Laguna, which drains the Tri-Valley area. | | |
| San Francisco Bay | Alameda | Arroyo Las Positas at N. Vasco Improvements | $ 2,830,000 | This project will increase the channel capacity of an undersized reach of Arroyo las Positas so it equals the capacity of the reach immediately east of Vasco Road. | | |
| San Francisco Bay | Alameda | Crow Creek Fish Habitat Restoration | $ 1,000,000 | | Yes | Ecosystem |
| San Francisco Bay | Alameda | Don Castro Dam Ideal Project | $ 30,000,000 | | | |
| San Francisco Bay | Alameda | El Charro Specific Plan | $ 560,000 | The El Charro Specific Plan Area, a portion of northwest Livermore considered for development, is subject to flooding from the Arroyo Las Positas and the Arroyo Mocho. The City of Livermore is concerned that reduction in floodplain storage, due to development, could result in increased peak discharges downstream on the Arroyo de la Laguna. Results showed that any increased flow may result in increased flooding and erosion downstream of Bernal Avenue. | | |
| San Francisco Bay | Alameda | Flood Facilities - Chain of Lakes | $ 23,350,000 | The Chain of Lakes is located between the cities of Livermore and Pleasanton and, when complete, will consist of a series of abandoned gravel quarry pits converted into nine lakes, linked in series, plus Cope Lake. Thus far, the County owns two of these lakes, and will acquire one around 2014 and two more by 2030. The lakes will be used for seasonal water storage and conveyance, and floodwater detention. | Yes | Water Supply |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| San Francisco Bay | Alameda | Lakes H, I and Cope Facility Planning | $ 310,000 | | | |
| San Francisco Bay | Alameda | Major Fish Passage Barrier Removals: Don Castro, Foothill Fish Ladders, Resting Pools | $ 7,000,000 | | Yes | Ecosystem |
| San Francisco Bay | Alameda | San Lorenzo Creek Parkways - Mission to Meek Demonstration Project with Fish Passage Enhancements | $ 7,000,000 | The San Lorenzo Creek Restoration Project is a pilot for a proposed pedestrian and bicycle trail along one of the largest creeks in the East Bay. A 40-foot-deep by 150-foot-wide stream gorge in downtown Hayward is the site of this successful creek restoration. The County's Flood Control District stabilized more than 400 feet of stream bank, constructed three trailheads with creek overlooks, installed 10 interpretive panels and banners, and enhanced more than 1,000 feet of creekside habitat. If the long-term vision of creating a 12-mile urban creek and trail system is realized, this project will be the centerpiece, providing a scenic rest stop and entry point. This trail system would connect the San Francisco Bay Trail on the western edge of San Lorenzo to the Bay Area Ridge Trail on the Eastern edge of Castro Valley and provide unique recreational opportunities for residents. | Yes | Recreation |
| San Francisco Bay | Alameda | Shoreline Levee Construct in Board Levee between Highway 92 and Old Alameda Creek in Hayward | $ 10,600,000 | The levee construction component of the proposed project, as a pilot for the Levee Project, would take place along the Cargill Levee west of the Union Sanitary District facility beginning at the confluence of Old Alameda Creek and extending approximately 3,000 feet south along the existing levee. The work will be staged along the existing levee tops. The levee would be raised to a height of approximately 15 feet with a 20-foot-wide crown, 2:1 side slopes, and an 80-foot-wide base. The levee would be constructed primarily of clean fill and dredged materials and would be built over a period of several years to allow for settling to comply with FEMA standards. | | |
| San Francisco Bay | Alameda | Stream Management Master Plan (SMMP) Projects | $ 479,000,000 | SMMP provides a summary description of each of the recommended SMMP projects by reach. The project descriptions included in the report are structured around the project summary tables, which provide the details of each project including location, project description, cost estimate, implementation issues, project precursors and project benefits. | | |
| San Francisco Bay | Alameda | Stream Restoration between Dixon Street and Mission Boulevard in Hayward | $ 539,000 | As part of the South Hayward Bay Area Rapid Transit (BART) Mission Boulevard, concept portions of Zeile Creek would be improved and restored to address flooding issues. | | |
| San Francisco Bay | Alameda | Tidal Wetlands Restoration for Sediment Management | $ 20,000,000 | | Yes | Ecosystem |
| San Francisco Bay | Alameda | Zone 2 Line B, Fish Ladder Construction at San Lorenzo Creek Dam in Unincorporated Hayward | $ 660,000 | | Yes | Ecosystem |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| San Francisco Bay | Alameda | Zone 2 Line J, Creek Restoration between Norbridge Avenue and East Castro Valley Boulevard in Castro Valley | $ 265,000 | The primary purpose of the project was to increase the creek's capacity to carry a 100-year flood. Project includes daylighting a stretch of Castro Valley Creek near Norbridge Avenue and Redwood Road, demolishing a 300-foot-long by 12-foot-wide by 6-foot-high concrete box culvert, widening creek banks, and installing a creekside amphitheater, recreational trails, and a playground. | Yes | Recreation |
| San Francisco Bay | Alameda | Zone 2, Castro Valley Area Capacity Improvements: Lines I, J, G, and H | $ 10,225,000 | | | |
| San Francisco Bay | Alameda | Zone 3A, Line A between Confluence Union Pacific Railroad and Cabot Boulevard | $ 1,400,000 | This project will provide the best overall solution meeting local flood district's design criteria, including bank stabilization, reduction of flow velocities, and containment of the 100-year storm event. The project will restore the project site by planting native vegetation within the constraints of right-of-way and design parameters. | Yes | Ecosystem |
| San Francisco Bay | Alameda | Zone 4 Line E, Sediment Removal from Line A to Line E-3 in Hayward | $ 1,980,000 | | | |
| San Francisco Bay | Alameda | Zone 5 Shoreline Levee Construct In-board Levee between Old and New Alameda Creeks, Union City | $ 8,310,000 | As part of the Salt Pond Project Coalition, the local flood district is helping to restore approximately 5,500 acres of Eden Landing Ponds in Hayward, and has provided the design for restoration. Existing salt pond levees and dikes will be removed to allow water to flow naturally in and out of the low-lying wetlands. The District has also conducted studies to learn more about Bay tidal effects on the ponds, and how Old Alameda Creek and the Alameda Creek Federal project will be integrated with the creation of new wetlands. | Yes | Ecosystem |
| San Francisco Bay | Alameda | Zone 6 Shoreline Levee Construct In-board Levee South of Highway 84, Fremont | $ 6,130,000 | | | |
| San Francisco Bay | Contra Costa | Alamo Watersheds (DA 13) Drainage Planning | $ 300,000 | | | |
| San Francisco Bay | Contra Costa | Contra Costa Water District (CCWD) Stormwater Flood Management | $ 10,000,000 | This project is Phase 5 of a larger project that will replace 21,000 feet of the unlined Contra Costa Canal with a pipeline to improve source water quality available to the CCWD by preventing intrusion of poor-quality groundwater. Phase 5 will install 4,000 feet of pipeline to replace an unlined canal and levees, and a flood isolation structure to prevent breach or inflow of poor-quality water in case of a Delta levee failure. | | |
| San Francisco Bay | Contra Costa | DA 33A Concord Boulevard Culvert Replacement | $ 400,000 | This project would replace the culvert at Concord Boulevard. | | |
| San Francisco Bay | Contra Costa | DA 48B Line A at Port Chicago Highway | $ 345,000 | | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| San Francisco Bay | Contra Costa | DA 67 Tice Creek Flood Bypass | $ 2,481,000 | | | |
| San Francisco Bay | Contra Costa | Galindo Creek Improvements | $ 1,030,000 | | | |
| San Francisco Bay | Contra Costa | Grayson Creek and Murderer's Creek Project | $ 8,000,000 | | | |
| San Francisco Bay | Contra Costa | Grayson Creek Levee Rehabilitation at Central Contra Costa Sanitary District | $ 1,312,000 | | | |
| San Francisco Bay | Contra Costa | Grayson Creek Sediment Removal | $ 1,826,000 | | | |
| San Francisco Bay | Contra Costa | Green Valley Creek Bank Repair | $ 110,000 | | | |
| San Francisco Bay | Contra Costa | Green Valley Creek Improvements | $ 7,840,000 | This project provides the planning for Green Valley Creek improvements from I-680 to the first crossing of Diablo Road. Ultimate configuration and plan phasing will be developed to reduce environmental impacts. Complete project planning includes minor improvements on Green Valley Creek, upstream of the second crossing of Diablo Road. | | |
| San Francisco Bay | Contra Costa | Kubicek Basin Capacity Improvement | $ 650,000 | | | |
| San Francisco Bay | Contra Costa | Lower Walnut Creek Improvements | $ 28,000,000 | This project covers Master Plan enhancement followed by restoration, levee setback, sediment removal to clear a portion of the channel, acquisition of adjacent wetland for salt marsh harvest mouse and trails adjacent to the creek. Studies with the USACE are ongoing. Work has been completed on a $260,000 CALFED grant-study. The Lower Walnut Creek Project incorporates a new way of approaching the traditional methods of operating and maintaining a flood control facility. The existing channel is a classic USACE trapezoidal earth channel that requires ongoing desilting maintenance. The alternative approach will be to move the channel levees back in the lower reaches to provide additional capacity for floodwaters and to create floodplains. This approach will provide the necessary capacity to handle floodwaters while reducing desilting costs and creating additional wetlands, riparian habitat, and revegetation potential. Other project components include improving fish passage and habitat, and increasing recreational opportunities. | Yes | Ecosystem |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| San Francisco Bay | Contra Costa | North Richmond Pump Station Retrofit | $ 1,350,000 | | | |
| San Francisco Bay | Contra Costa | Pacheco Marsh Restoration | $ 10,900,000 | | Yes | Ecosystem |
| San Francisco Bay | Contra Costa | Pine Creek Dam Sediment Removal and Capacity Restoration | $ 750,000 | | | |
| San Francisco Bay | Contra Costa | Pine Creek Dam Seismic Assessment | $ 253,000 | | | |
| San Francisco Bay | Contra Costa | Pine Creek Dam Seismic Rehabilitation | $ 4,000,000 | | | |
| San Francisco Bay | Contra Costa | Pinn Brothers Marsh Creek Riparian Restoration Project | $ — | Working in collaboration with the City of Brentwood, Contra Costa County FCWCD and the National Highway Institute (NHI), the Pinn Brothers Developers plan to restore a floodplain and the riparian vegetation along 1,900 linear feet of Marsh Creek as part of a 579-unit subdivision development on 79 acres in downtown Brentwood. This project is the longest stretch of undeveloped land adjacent to Marsh Creek in the City of Brentwood. The project will expand the Marsh Creek channel, creating enough room to restore riparian vegetation while maintaining the 100-year flood conveyance capacity. Riparian vegetation will provide habitat for birds, shade for the residents who use the adjacent trail, and lower the temperature in the creek to improve habitat for aquatic species such as the endangered red-legged frog, western pond turtle, and spawning fall-run Chinook salmon. | Yes | Ecosystem |
| San Francisco Bay | Contra Costa | Rodeo Creek Detention Basin | $ 650,000 | This project investigates the detention basin needed on Rodeo Creek upstream of Burlington Northern Santa Fe Railroad due to new State Route 4 and Hercules development. | | |
| San Francisco Bay | Contra Costa | Rodeo Creek Restoration and Capacity Improvements | $ 5,000,000 | | | |
| San Francisco Bay | Contra Costa | Rodeo Creek Stabilization at Christy Road | $ 400,000 | | | |
| San Francisco Bay | Contra Costa | San Ramon Creek Improvements (Danville Area) | $ 1,105,000 | The project provides for creek restoration at El Capitan, bank repair downstream of Fostoria, and mitigation landscaping from Chaney to Livoma. | | |
| San Francisco Bay | Contra Costa | Town of Danville Drainage Area Plan | $ 1,160,000 | This project will plan and develop the project for implementing the next element of the drainage area plan, including coordination with the Town of Danville. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| San Francisco Bay | Contra Costa | Upper Pinole Creek Detention Basin | $ 2,000,000 | | | |
| San Francisco Bay | Contra Costa | Walnut Creek levee rehabilitation at Buchanan Field Airport | $ 1,078,000 | | | |
| San Francisco Bay | Contra Costa | Walnut Creek Sediment Removal Clayton Valley Drain to Drop #1 | $ 1,235,000 | | | |
| San Francisco Bay | Contra Costa | Wildcat Creek Levee Evaluation | $ 640,000 | | | |
| San Francisco Bay | Contra Costa | Wildcat Creek Levee Rehabilitation | $ 1,684,000 | | | |
| San Francisco Bay | Contra Costa | Ygnatio Valley Drain Bank Repair | $ 247,000 | | | |
| San Francisco Bay | Marin | Bothin Marsh/Coyote Creek Restoration and Flood Control | $ 3,000,000 | The project will increase the tidal prism by opening the levee between Coyote Creek and Bothin Marsh and will restore marsh habitat within the Bothin Marsh Open Space Preserve. It is also desired to increase the size of the Marsh area for stormwater absorption and increased tidal prism. The project will be designed to improve the value and quality of the habitats within Bothin Marsh. Fill will be excavated to restore marsh plain habitat; this will provide additional marsh habitat suitable for both the salt marsh harvest mouse and Point Reyes bird's beak. Also, upland cover will be enhanced to provide upland refuge for clapper rails. The entire program would entail a joint planning, acquisition, construction, and restoration project administered by the Marin County FCWCD in participation with the County Parks and Open Space Department. | Yes | Ecosystem |
| San Francisco Bay | Marin | Channel Maintenance Dredging--Gallinas Creek | $ — | This project provides maintenance dredging of Las Gallinas Creek for recreational/boating use to minus 7 feet. | Yes | Recreation |
| San Francisco Bay | Marin | Community Service Area 29 Paradise Cay Maintenance Dredge | $ 500,000 | This is a maintenance dredging project that includes the north and south areas of Paradise Cay for recreational boating use to minus 7 feet within waterways and to minus 8 feet in the two entry channels. | Yes | Recreation |
| San Francisco Bay | Marin | Corte Madera Creek Unit 4 Zone 9 | $ 265,000 | This project will replace the fish ladder and revet the banks of Unit 4 in Ross, dependent on Congressional funding. | Yes | Ecosystem |
| San Francisco Bay | Marin | Corte Madera Creek Watershed Models | $ 920,000 | The purpose of these models is to provide quantitative tools for water quality protection and enhancement, flood management, and land use planning. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| San Francisco Bay | Marin | Corte Madera Creek Watershed Plan | $ 310,000 | This project will complete the plan using a community-based approach, and would use the planning process to build on community support already present, expand the participation of stakeholders, and educate stakeholders, with the ultimate goal of having the watershed plan adopted by Marin County and the incorporated communities within the watershed. | | |
| San Francisco Bay | Marin | Corte Madera Creek/Ross Creek Critical Reach | $ — | This project will include, at a minimum, removal of the existing timber bulkhead/fish ladder at the concrete channel inlet, construction of a smooth transition from the natural channel to the narrow concrete channel inlet, and other measures to enlarge the channel. The USACE design is also anticipated to include top-of-bank floodwalls or landscape berms upstream and downstream of the fish ladder to contain floodwaters. This project will seek to accommodate a peak discharge up to 5,000 cfs at the lower Sir Francis Drake Boulevard Bridge and up to 6,000 cfs (but no less than 5,600 cfs) at the Ross Creek confluence. Measures that lower water levels under design discharge conditions by improving the hydraulic efficiency of the channel should be incorporated into the Unit 4 Project design. These measures, which are located upstream of the stream flow-gauge in Ross, also improve the natural and ecological functions of the creek (biotechnical bank stabilization, enlarging and restoring creek, restoring slope bank and bed). | Yes | Ecosystem |
| San Francisco Bay | Marin | Crest Marin Creek Drainage Study | $ — | This is a comprehensive project to address flooding of the Tamalpais Valley floor from flows associated with Crest Marin Creek. | | |
| San Francisco Bay | Marin | Dredging, Novato Creek Zone 1 | $ 1,680,000 | The goal of this project is to remove sediment from Novato Creek between Railroad Avenue and Diablo Avenue as part ofthe maintenance of the Novato Flood Control Project. | | |
| San Francisco Bay | Marin | Easkoot Creek Sediment Removal | $ 75,000 | Sediment will be removed from the creek channel. | | |
| San Francisco Bay | Marin | Fairfax Creek Channel Improvements | $ 19,700,000 | For Fairfax Creek, the CIP Study calls for 46 in-channel conveyance capacity measures. Key measures include:<br>• Completely replacing the Sherman Avenue box culvert, located over one private residential building at the end of the culvert<br>• Removing or modifying the portion of the Town Hall building that overhangs the creek<br>• Replacing the Merwin, Azalea, and Scenic Road Bridges, with associated channel enlargement and creek restoration work<br>• Adding shallow, top-of-bank floodwalls or landscape berms and retaining walls as needed along discrete sections of the creek<br>These measures alone can provide Fairfax with a 22-year level of flood protection. Existing conditions provide a 6-year level of flood protection. | | |
| San Francisco Bay | Marin | Flood Control Zone 3 Master Plan | $ — | The Zone 3 Master Plan will revisit findings and recommendations for the zone's watersheds and develop a comprehensive plan for future flood control projects and needs. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| San Francisco Bay | Marin | Gate 5 Road Area Conceptual Drainage Study | $ — | This Conceptual Drainage Study evaluates the need to eliminate routine (e.g., every few years) street and parking lot flooding that occurs in the low, flatter areas of the Gate 5 road area. Provide flood protection to the Gate 5 road area from a 1 percent (100-year) storm event. | | |
| San Francisco Bay | Marin | Las Gallinas Creek Levee Evaluation | $ 1,400,000 | The local flood district and the USACE are working together on a joint study to evaluate the condition of the existing levee and to determine the feasibility of a range of improvement alternatives. Phase I of this study is currently underway and includes a geotechnical evaluation, hydrology and hydraulic analysis, and an economic evaluation and determination of feasibility for continued Federal participation in the project. | | |
| San Francisco Bay | Marin | Lefty Gomez Field Detention Basin | $ 6,400,000 | The detention basin would be formed by a 75-foot-long by 17-foot-high concrete dam and spillway structure across the creek. Two culverts will penetrate the structure—a large gated culvert, which normally will be kept open to allow unimpeded passage of a range of flows, sediment, woody debris, fish and wildlife; and a smaller, ungated culvert to allow limited, continuous discharge during detention operations. To provide necessary storage capacity, the field would be lowered an average of about 16 feet and containment features would be built along the east and north sides. Material excavated from the field will be used to build the 8-foot-high engineered earthen embankment along the east side. Concrete walls up to 3 feet high along a 150-foot stretch of Glen Drive and up to 4 feet high along the basketball courts will provide containment along the north side. The existing Sir Francis Drake Boulevard road embankment will provide containment along the south side. No containment feature will be needed along the west side because the natural topography will be sufficient for containment. | | |
| San Francisco Bay | Marin | Loma Alta Tributary Detention Basin | $ 1,900,000 | The site is situated in a gulch along an unnamed tributary to Fairfax Creek that drains approximately 115 acres. The tributary joins Fairfax Creek just downstream of Lefty Gomez Field. The detention basin would be formed by a 210-foot-long by 25-foot-high engineered earthen embankment across the gulch. A large, gated culvert will penetrate the embankment and normally will be kept open to allow unimpeded passage of a range of flows, as well as sediment, woody debris, and wildlife. When flooding is imminent farther downstream, the gate will be closed to shut off flow for floodwater detention. A spillway bypass along the west side will allow safe passage of flood flows in rare cases when the basin becomes full. | | |
| San Francisco Bay | Marin | Lower Las Gallinas and Miller Creek Restoration Proposal | $ 52,000,000 | The Las Gallinas-Miller Creek wetland complex (7 square miles) supports a significant area of mudflats in San Pablo Bay. These tidal marshes support the largest population of clapper rails in the North Bay region, and Miller Creek supports a small but self-sustaining run of genetically unique steelhead trout. This project proposes to integrate wetland restoration with flood management benefits, including levee rehabilitation, local drainage improvements, and channel dredging. | Yes | Ecosystem |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| San Francisco Bay | Marin | Lower Novato Creek Restoration Proposal | $ 12,200,000 | The proposed tidal marsh restoration at Bel Marin Keys will affect the hydrology of several elements within the lower Novato Creek basin. Proposed modifications to Pacheco Pond and the proposed diversion of flow away from Novato Creek considered in the design alternatives will present the most substantial effects. The proposed modifications to Pacheco Pond consist of either expanding the existing pond, or creating a seasonal marsh adjacent to the pond. In addition, the diversion of water currently flowing into Novato Creek from Pacheco Pond, to the proposed tidal marsh will greatly affect existing conditions on the Bel Marin Keys tidal wetlands restoration site. These flows will provide fresh water for the proposed freshwater marsh portion of the project. | Yes | Ecosystem |
| San Francisco Bay | Marin | Mahon Creek Flood Restoration Project | $ — | | | |
| San Francisco Bay | Marin | Memorial Park Detention Basin | $ 7,000,000 | The detention basin would be formed by an engineered earthen embankment up to 9 feet high along the south side across Sorich Creek and lower embankments along portions of the east and west sides. A large, gated culvert will penetrate the embankment and normally will be kept open to allow unimpeded passage of a range of flows, as well as sediment, woody debris, and wildlife. When flooding is imminent, the gate will allow shutoff for floodwater detention. In rare cases when the basin becomes full, an internal spillway will pass floodwaters through the culverted reach of Sorich Creek below the basin. To provide necessary storage capacity, the field will be lowered by 13 feet and, in the process, Sorich Creek will be daylighted as it passes through the park. The excavated material will be used to build the embankments. No containment features will be needed along the east and north sides. | | |
| San Francisco Bay | Marin | Phoenix Lake Detention Basin | $ 3,700,000 | This project is primarily for the purpose of water supply reserve for use during the dry season, particularly during shortages, but it also serves as wildlife habitat and a public recreation and enjoyment area. | Yes | Ecosystem |
| San Francisco Bay | Marin | Phoenix Lake Integrated Regional Water Management (IRWM) Retrofit | $ 7,661,000 | The Phoenix Lake IRWM Retrofit is a multi-purpose proposal with five component projects, all located at Phoenix Lake—Flood Damage Reduction, Water Supply, Water Quality, Ecosystem Restoration, and Recreation and Public Access. By seismically retrofitting the dam and constructing other improvements to the hydraulic and recreational infrastructures of the lake, the lake can be operated to serve the multiple purposes of flood management, drinking water supply, water quality, ecosystem restoration, and public recreation. Therefore, the Retrofit meets the 6 regional goals and 62 objectives of the Bay Area IRWM Plan. | Yes | Water Supply |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| San Francisco Bay | Marin | Red Hill Park Detention Basin | $ 1,700,000 | The detention basin would be formed by an approximately 500-foot-long by 12-foot-high engineered, earthen embankment across the lower end of the site connecting to the Shaw Drive and Sunny Hills Drive road embankments. A large, gated culvert will penetrate the embankment and join the existing culvert that runs underground through the Red Hill Shopping Center. The gate normally will be kept open but will be shut off during floodwater detention operations. An internal spillway will pass floodwaters through the culvert that runs through the shopping center. | | |
| San Francisco Bay | Marin | Regional Best Management Practices, Field Manual, and Training for Stream Maintenance Activities | $ 130,000 | The purpose of this project is to create an integrated set of regional BMPs, a standardized field manual, and consistent training for stream maintenance activities. Regionally consistent materials will help maintain flood capacity, while also contributing to habitat protection and water quality. | Yes | Ecosystem |
| San Francisco Bay | Marin | Richardson Bay Tidal Flooding Study | $ 25,000,000 | This study will evaluate existing conditions and identify conceptual alternatives and preliminary cost estimates to reduce tidal flooding along Richardson Bay shoreline at Shelter Bay, Marin City, Mill Valley at Miller/Almonte and at Miller/Camino Alto, and Manzanita. | | |
| San Francisco Bay | Marin | Salt Marsh Enhancement and Tidal Prism Enlargement | $ — | This project provides three measures to manage sedimentation and maintain 100-year capacity in the earthen channel:<br>• Raise levees along the 2,000-foot-long 100-year bankfull reach below the stilling basin<br>• Scour the channel by enlarging the tidal prism<br>• Conduct periodic dredging.<br>Five potential sites were preliminarily identified in the adjacent floodplain of the earthen channel for marsh enhancement and tidal prism enlargement. | Yes | Water Quality |
| San Francisco Bay | Marin | San Anselmo Creek Channel Improvements | $ 54,400,000 | The improvements include 82 in-channel capacity measures, amounting to comprehensive, reach-scale enlargement and restoration of the creek, resulting in a generally wider and deeper channel throughout. The Capital Improvement Plan Study also calls for removing, replacing, and/or modifying nearly every existing in-channel structure. | | |
| San Francisco Bay | Marin | SCADA System Installation in Zones 3, 4 and 7 West Creek Flood Wall Zone 4 | $ 150,000 | Three of the eight Flood Control Zones rely on pump stations for flood protection. Zone 3 has four stations, Zone 4 has two stations and Zone 7 has five stations. Each of these stations is equipped with an alarm system that sends a signal when the water exceeds a set level or when power is lost to the station. This project will install SCADA systems in the six stations in Zones 3 and 4. A SCADA system will allow monitoring in real time from the Civic Center of any data that can be measured, such as the rate of pumping, the heat of a motor, or how long a pump has been operating. This will allow on-duty staff to anticipate problems and respond before they actually occur. Zone 7 stations will be completed as funds become available. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| San Francisco Bay | Marin | Seminary Drive Pump Station Zone 3 | $ 1,000,000 | This project would construct a stormwater pump station at the Redwood Highway Frontage Road and northbound Highway 101 interchange (i.e., Seminary Drive exit) in unincorporated Mill Valley. The pump station, which will be equipped with backup power, will improve roadway drainage and eliminate roadway closures that now occur when there are high tides. | | |
| San Francisco Bay | Marin | Sleepy Hollow Creek Channel Improvements | $ 9,100,000 | For Sleepy Hollow Creek, the Capital Improvement Plan Study calls for 33 in-channel capacity measures. Key measures include:<br>1) Replacing the Taylor, Mountain View, Morningside, and Broadmoor Avenue Bridges, including associated channel enlargement and creek restoration work<br>2) Enlarging the channel and restoring the creek at two additional sites downstream of the Morningside Avenue Bridge and the Broadmoor Avenue Bridge. | Yes | Transportation |
| San Francisco Bay | Marin | Vineyard Creek Improvements Zone 1-Phase II Bothin Marsh Restoration and Flood Control Improvement Project - Zone 3 | $ 5,000,000 | This project will modify or replace the Center Road Culvert to maximize conveyance and to maintain bed stability and provide channel improvements such as increased cross-sectional area, elevation of creek bank with flood barriers, and improved flow velocities to control flooding from the western end of Arbor Circle to McClay Road in Novato. This project will be constructed in two phases. Phase I was constructed in FY 2007-08. | | |
| San Francisco Bay | Marin | Wetland and Creek Restoration at Big Lagoon, Muir Beach | $ 2,500,000 | The project involves three components:<br>• Ecological restoration<br>• Public access upgrades, including a reconfiguration of the existing parking lot<br>• Replacement of the Pacific Way Bridge<br>All components are designed to improve ecological function. | Yes | Ecosystem |
| San Francisco Bay | Napa | Milliken Creek Flood Mitigation Projects | $ 1,000,000 | | | |
| San Francisco Bay | Napa | Napa River - Rutherford Reach Restoration | $ 17,800,000 | Restoration objectives for the Rutherford Reach of the Napa River include the following:<br>• Reduce bank erosion, loss of vineyard land, and flood damages by restoring stability to the Napa River<br>• Reduce sediment loading into the river downstream and into San Pablo Bay, a Regional Water Quality Control Board TMDL objective<br>• Restore habitat for salmonids and other aquatic species, including existing runs of steelhead trout and Chinook salmon, by creating more riffles, reducing sediment burial of spawning gravels, and increasing cover and shade<br>• Restore a continuous corridor of riparian habitat for birds and wildlife<br>• Replace invasive plants with native species and reduce risk of Pierce's disease<br>• Engage landowners in the process and maintain regulatory compliance | Yes | Ecosystem |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| San Francisco Bay | Napa | Salvador Creek Flood Mitigation Projects | $ 1,000,000 | This project will remove concrete rubble that was placed in the channel over many years by adjacent landowners trying to stop streambank erosion. Upon removal of the rubble, the streambanks will be regraded to a more stable slope and planted with native riparian vegetation. | | |
| San Francisco Bay | San Francisco | Cesar Chavez/Valencia Street Corridor Sewer Improvements | $ 24,000,000 | Construction work is part of the San Francisco Public Utilities Commission (SFPUC) Wastewater CIP and is intended to provide area-wide improvements to the existing sewer system in the Mission District and lower Bernal Heights area in San Francisco. The construction project will increase reliability of the combined sewer system and minimize potential flooding in the area. | | |
| San Francisco Bay | San Francisco | Low-Impact Design Program | $ 52,500 | | | |
| San Francisco Bay | San Francisco | San Francisco Stormwater and Flood Management Priority Projects | $ 62,251,000 | The proposal includes two projects—Sunnydale Flood and Stormwater Management Sewer Improvement Project, and Cesar Chavez Street Flood and Stormwater Management Sewer Improvement Project. These projects would achieve several key goals:<br>1) Protect public health and safety from flooding<br>2) Protect and enhance water quality in the San Francisco Bay<br>3) Provide a compliant, reliable, resilient, and flexible system that can respond to catastrophic events | | |
| San Francisco Bay | San Francisco | Sewer System Improvement Project Drainage Basin Projects | $ 292,659 | Project is a collection of capital improvements that will help the Wastewater Enterprise meet the SFPUC endorsed level of service goals for regulatory permit compliance, system reliability and functionality, and sustainable operations of the City's sewer system. | | |
| San Francisco Bay | San Francisco | Sunnydale Sewer Improvements | $ 24,000,000 | The sewer system in this area currently transports combined sewer flows from an approximate 720-acre area (about 72 percent of the area is residential, 24 percent is open space, and 4 percent consists of paved roadways and parking areas) through a single 6.5-foot-diameter sewer that was constructed in 1913. During heavy rains, this area is at significant risk of flooding. The Sunnydale Flood and Stormwater Management Sewer Improvement Project includes the construction of new and replacement sewer facilities in the Visitacion Valley/Sunnydale neighborhood to improve the system's ability to contain and control substantial rainfall events. | | |
| San Francisco Bay | San Francisco | Watershed Assessment | $ 14,000 | | | |
| San Francisco Bay | San Mateo | Bayfront Regional Flood Protection System Improvements and 5th Avenue Pump Station Renovation Project - Redwood City | $ 16,000,000 | The project consists of two components—Upsizing the 5th Avenue pump station, and infrastructure improvements to the regional drainage system along the city side of the Bayfront Canal and portions of the Atherton Channel. Upsizing the pump station will address seismic safety issues and handle more storm events. The infrastructure improvements will consist of sheet-pile floodwalls that will be constructed to hold back stormwater and high tides from flooding developed land areas. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| San Francisco Bay | San Mateo | Colma Creek Flood Control and Habitat Mitigation Improvements | $ — | The Colma Creek Flood Control Channel provides flood protection for residents of South San Francisco, Colma, and Daly City. Loss of salt marsh wetland habitat caused by flood control channel improvements are being mitigated by restoring 1.5 acres of salt marsh wetlands and 2.0 acres of high-quality upland habitat located at the outlet of Colma Creek to San Francisco Bay. Funding is sought to complete three projects on the Colma Creek Flood Control Channel.<br>• One project would install a sheet-pile wall on the south side of the Colma Creek Channel from Utah Avenue to Navigable Slough, which would provide enhanced flood protection at the lower reaches of the Channel.<br>• A second project would provide for continued maintenance and monitoring at the habitat mitigation site located along the creek banks near San Francisco Bay.<br>• A third project would develop and implement a trash management program aimed at reducing the amount of trash entering the flood control channel from adjacent and upstream communities. | Yes | Ecosystem |
| San Francisco Bay | San Mateo | Sanchez/Terrace Creek Restoration Project | $ 10,000,000 | Repair eroded channel, stabilize banks and levees, remove sedimentation, improve catch basins and storm drain pipes in the Laguna Avenue residential area. Improve channel conveyance capacity by increasing the size of the Terrace Creek box culvert from Laguna Avenue to California Drive, by installing a new pump station and force main in the vicinity of Carolan Avenue, and by installing a debris basin upstream from Carolan Avenue. Improve the benefits to the creek eco system | Yes | Water Quality |
| San Francisco Bay | San Mateo | Streambank Stabilization Using Bio-engineering | $ — | This project will demonstrate and improve use of bio-engineering techniques on eroding sections of Pescadero Creek, Tunitas Creek, Purisima Creek, and Lobitos Creek, located in unincorporated San Mateo County. The targeted eroding creek banks are located adjacent to county-maintained roads and within county rights-of-way. These creeks are designated as critical habitat for steelhead trout by the National Marine Fisheries Service. Grant funds will be used to train engineering staff and road crews, design site-specific bioengineered projects, permitting, construction, and monitoring. | Yes | Ecosystem |
| San Francisco Bay | Santa Clara | Alviso Slough Restoration Project | $ 16,500,000 | Objectives of this project include:<br>1) Restore Alviso Slough's channel width and habitat to pre-1983 conditions<br>2) Improve the community's ability to pursue navigation, public access, and aesthetics to allow for the expansion of boating and other recreational and/or tourism opportunities<br>3) Maintain 1% flood protection in Alviso Slough<br>4) Reduce mosquito nuisance<br>5) Promote the integration of the Alviso Slough Restoration project with the South Bay Salt Pond (SBSP) Restoration Project, including the SBSP Phase 1 Action at Pond A8, to reestablish the saltwater connection to the Lower Guadalupe River. | Yes | Ecosystem |

### Table E-E-1. Local Agency Planned Projects

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| San Francisco Bay | Santa Clara | Bay Area Levee Certification | $ 610,000 | This project will inventory levees and collect documentation to FEMA standards, and certify levees and/or scope the process of certification for those levees that have not been previously certified to FEMA standards. The project will also scope the level of effort required to improve levees to meet FEMA standards for those levees that might require physical/geotechnical improvements. | | |
| San Francisco Bay | Santa Clara | Calabazas Creek Planning Study | $ 109,700,000 | This project would provide channel and levee construction and modification, bank stabilization, revegetation, and floodwalls, as well as road and bridge modifications. | | |
| San Francisco Bay | Santa Clara | Guadalupe River Downtown Flood Protection (from Interstate 880 to Interstate 280) | $ — | The Guadalupe River Flood Protection Project extends from Interstate 880 to Interstate 280 in the City of San Jose. The project will provide flood protection to the city's technology and commercial industries and established residential neighborhoods, protect and improve the water quality of the river, preserve and enhance the river's habitat for fish and wildlife, and provide recreational and open space benefits. | Yes | Ecosystem |
| San Francisco Bay | Santa Clara | Lake Cunningham Improvements | $ 9,295,000 | This project plans, designs, and constructs improvements to Lake Cunningham in the city of San Jose between Cunningham Avenue and Tully Road, to function as a detention basin and provide 1% flood protection to Lower Silver Creek between Coyote Creek and Cunningham Avenue. Obtain Letter of Map Revision from FEMA to remove at least 3,800 parcels from the 1% floodplain. | | |
| San Francisco Bay | Santa Clara | Lower Guadalupe River project | $ — | | | |
| San Francisco Bay | Santa Clara | Lower Silver Creek Project (Reaches 1 through 3) | $ — | Construct the Natural Resources Conservation Service (NRCS) Watershed Plan to improve Lower Silver Creek to ensure flood protection up to the 100-year flood event. Lower Silver Creek Project - Reaches 1 through 3 starts at the confluence with Coyote Creek and runs upstream to Interstate 680. | | |
| San Francisco Bay | Santa Clara | Lower Silver Creek Flood Protection Project | $ 50,000,000 | The project will enlarge the creek channel and requires the replacement or enlargement of existing bridges crossing the creek. Project will protect nearly 3,800 homes and businesses from a 100-year flood event. Project objectives include:<br>• Provide flood protection from a 100-year flood event from Coyote Creek to Cunningham Avenue<br>• Protect 3,800 homes and businesses from a 100-year flood event<br>• Prevent potential future flooding damages from a 100-year flood event<br>• Enhance native riparian and environmental habitat<br>• Improve creek maintenance<br>• Improve water quality<br>• Provide increased opportunities for recreation in cooperation with the city and county | Yes | Ecosystem |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| San Francisco Bay | Santa Clara | Lower Silver Creek, I-680 to Cunningham (Reaches 4 through 6) | $ 65,334,000 | This project is part of a flood control project that partners with the NRCS to plan, design and construct improvements along approximately 2.3 miles of Lower Silver Creek, from Interstate 680 to Lake Cunningham. This project includes elements that are eligible for reimbursement from the State and Federal governments to accomplish the following objectives:<br>• Increase flood protection to 5,400 properties in the surrounding area<br>• Improve vehicle and pedestrian bridges crossing Lower Silver Creek<br>• Allow for onsite mitigation of project impacts, and in some cases enhancement of existing habitat values by increased wetlands and riparian habitat | Yes | Ecosystem |
| San Francisco Bay | Santa Clara | Matadero/Barron Creeks Long-Term Remediation Project | $ 24,000,000 | Remediation includes flood control improvements both upstream and downstream from Highway 101, extending 1.5 miles from the Palo Alto Flood Basin to Alma Street. City has approved (with conditions) the upstream portion of the Matadero Creek improvements, including Louis Road bridge replacement and heightened floodwalls and headwalls between Highway 101 and Alma Street. | | |
| San Francisco Bay | Santa Clara | Mid-Coyote Project | $ 32,000,000 | The Mid-Coyote Project is located in the central portion of the Coyote Watershed. Its limits extend approximately 6.1 miles between Montague Expressway and I-280, all in the City of San Jose. The project's primary objective is to enhance the creek's conveyance. Additionally, the project will improve fisheries and habitat values and provide appropriate public access opportunities in cooperation with the City of San Jose. This multi-year study will necessitate preparation of a detailed Engineer's Report and an Environmental Impact Report to comply with CEQA. | Yes | Ecosystem |
| San Francisco Bay | Santa Clara | Open Space Authority Acquisitions | $ — | Preservation of wetlands and riparian corridors will help reduce flood peaks. | Yes | Ecosystem |
| San Francisco Bay | Santa Clara | Regional Flood Agencies Forum | $ 100,000 | The purpose of this project is to accelerate the regionwide transition of flood management agencies from a primary focus on building and maintaining channels, levees, and infrastructure, to a more integrated approach that includes floodplain management, habitat protection and enhancement, and multi-objective capital projects. Acceleration of the transition will be accomplished by improving transfer of technical information and expertise, by facilitating completion of projects that can serve as exemplars, and by informing policymakers and the public. | | |
| San Francisco Bay | Santa Clara | San Francisco Bay Shoreline | $ 500,000,000 | San Francisco Bay Shoreline is a partially funded (planning phase only) project that provides district coordination with the California Coastal Conservancy, USACE, and other project partners to plan, design, and construct improvements to accomplish the following objectives:<br>• Provide integrated fluvial and tidal flood protection<br>• Restore and/or enhance tidal marsh and related habitats<br>• Provide recreational and public access opportunities throughout the tidal floodplain of Santa Clara County; Pursue continued Federal funding. | Yes | Ecosystem |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| San Francisco Bay | Santa Clara | San Tomas Aquino Creek Flood Control Project | $ 565,000 | | | |
| San Francisco Bay | Santa Clara | San Tomas Creek, Quito Road Bridges Replacement | $ 558,000 | This project funds Santa Clara's portion of the replacement cost for two bridges on Quito Road to improve roadway safety and provide adequate stormwater flow capacity in the creek under the bridge. | Yes | Transportation |
| San Francisco Bay | Santa Clara | Santa Clara Valley Water District Flood Protection and Stream Stewardship Program | $ 24,700,000 | | | |
| San Francisco Bay | Santa Clara | South Bay Salt Pond Restoration Project | $ — | The goals of the project are to restore and enhance a mix of wetland habitats, provide wildlife-oriented public access and recreation, and provide for flood management in the South Bay. | Yes | Ecosystem |
| San Francisco Bay | Santa Clara | Sunnyvale and East and West Channels | $ 50,300,000 | The Sunnyvale East and West Channels Improvement Project plans, designs, and constructs improvements to approximately 6.4 miles of the Sunnyvale East Channel, from Guadalupe Slough to Interstate 280, and 2.3 miles of the Sunnyvale West Channel, from Guadalupe Slough to Highway 101. This project will provide flood protection to 1,629 parcels; provide environmental enhancement benefits where opportunities exist; provide recreation enhancements where opportunities exist; reduce erosion, sedimentation, and maintenance costs; and protect fish and wildlife habitat. | Yes | Water Quality |
| San Francisco Bay | Santa Clara | Thompson Creek Stream Stabilization | $ 2,500,000 | Work along the riparian corridor will enhance habitat by rehabilitating potentially thousands of feet of currently concrete channels back to partial riparian channels. | Yes | Ecosystem |
| San Francisco Bay | Solano | Alamo Creek Detention Basin | $ 5,920,000 | This project would include the establishment of a 1,000-acre-foot detention basin upstream from the City of Vacaville. The detention basin would hold 1,000 acre-feet of floodwater when there are flows that exceed 500 cfs. Water would flow in and out of the basin by gravity (no pumps will be required). The frequency of flooding along Alamo Creek would be reduced from one flood in 3 to 5 years to about one flood in 28 years. Within the detention basin 1 acre of wetland habitat would be created. There would be a reduction in sediment loads and downstream erosion. | Yes | Ecosystem |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| San Francisco Bay | Solano | Cache Slough/Yolo Bypass Mitigation Area, Solano County, California, Office Report, Sacramento River Bank Protection Project | $ — | The Sacramento River Bank Protection Project is a continuing construction project, authorized by the Flood Control Act of 1960, to provide protection for the existing levees and flood control facilities of the Sacramento River Flood Control Project. The Cache Slough/Yolo Bypass mitigation site is similar to the Prospect Island study. For this site, a cross levee was constructed to isolate the southern tip of Liberty Island from the northern portion of the island. Two mounds were created in the interior of the island, and then the levees of the isolated tip were breached in two places to restore tidal action to the site. This project evaluated different combinations of the habitat variables (such as topography, planting, and type of levee breach) of the mitigation site to determine the habitat value that could be realized by each combination. | Yes | Ecosystem |
| San Francisco Bay | Sonoma | Baylands | $ — | The project site offers a unique opportunity to restore nearly 1,000 acres of historical tidal marsh habitat that will benefit the Baylands ecosystem and endangered species, and provide Bay Area communities with improved water quality, flood protection, and recreation. The Sonoma Land Trust has acquired the property. | Yes | Ecosystem |
| San Joaquin | Calaveras | Upper Mokelumne River Watershed Management Plan | $ 1,250,000 | A complete watershed management plan is needed that will integrate much of the water quality management plan information into a comprehensive watershed management plan for the Upper Mokelumne River watershed. This document will help direct future watershed restoration and land use policies within the region by prioritizing restoration needs, resource conservation strategies and projects, and adoption of local and regional land use policies designed to provide a comprehensive management plan for the Upper Mokelumne River watershed resources. | Yes | Water Quality |
| San Joaquin River | Amador | Broad Street Storm Drain Diversion | $ 600,000 | The project includes a diversion structure to channel some of the runoff around the historic district and in turn, prevent flooding. A 36-inch-diameter storm drain will be constructed from Gopher Gulch Creek at Gopher Flat Road, along Broad Street, to Sutter Creek in the northeast and northwest quadrants of Amador. | | |
| San Joaquin River | Amador | Jackson Creek Enhancement Project | $ 100,000 | The creek bed will be enhanced for the purposes of education, recreation, and flood control. There will be landscaping and trails placed throughout the site that will be designed and implemented to decrease the need for weed abatement, and in turn reduce flooding. Invasive species will be pulled, and native species will be planted in their place. Interpretive signage will be added for educational purposes. | | |
| San Joaquin River | Amador | Marcucci Lane Culvert Project | $ 403,200 | The Marcucci Lane Culvert Project will replace the existing culvert, aligning it with the creek flow and applying a wider arch opening to eliminate the backwater effect. The new culvert would pass the 100-year storm flows without overtopping the stream bank. | | |
| San Joaquin River | Amador | Off-Stream Storage on Consumes River | $ 40,000,000 | A combination flood control and surface water supply project will provide both a reliable water supply and some flood control for these areas. Rather than on-stream storage and a dam, this project will focus on off-stream storage. High river flows will be reduced as surplus water is diverted and stored for use during dry periods. | Yes | Water Supply |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| San Joaquin River | Amador | Bear River Reservoir Expansion Project | $ 44,000,000 | There are three alternatives for this project that are being considered. The alternatives are:<br>1) Raise the Lower Bear Dam by 32 feet, increasing storage capacity by 26,407 acre-feet<br>2) Replace the Upper Bear Dam with a new dam; or<br>3) Construct a new dam on Cole Creek.<br>The primary benefit is additional water supply for Amador and Calaveras counties through increased storage of winter flows, and other benefits include flood control, power generation, improved water quality, and cold water releases to improve fisheries. | Yes | Water Supply |
| San Joaquin River | Calaveras | Off-Stream Storage on Mokelumne and Calaveras Rivers Project Summary | $ 155,276 | The Off-Stream Storage on Mokelumne River is Phase I and Off-Stream Storage on Calaveras River is Phase II of the project. Phase II may begin upon completion of Phase I or occur simultaneously. This project proposes to store surplus winter flows in the Mokelumne River. High flow discharges will be captured for distribution during the peak water-use season. A study will be performed to identify and evaluate site-specific characteristics for potential off-stream storage reservoir locations. The Calaveras River flow is derived from rainfall with almost no contribution from snowmelt. A study will be performed to identify and evaluate locations for off-stream storage reservoirs to take advantage of surplus flows. | Yes | Water Supply |
| San Joaquin River | Calaveras | Calaveras River Watershed Implementation Plan (WIP) | $ 325,000 | Continual contamination of this critically overdrafted groundwater basin has created a need to identify new surface water sources. The WIP will include a list of management strategies that will address multiple issues in the watershed, including the need for water quality improvements for drinking water and other beneficial uses, water supply reliability, pollution prevention, and aquatic and terrestrial habitat restoration, as well as the steps necessary to implement each management strategy. | Yes | Water Supply |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| San Joaquin River | Calaveras | Cosgrove Creek Project | $ 5,000,000 | To provide flood control protection along Cosgrove Creek in these areas, as well as surface water storage, recreation, environmental restoration, and wastewater recycling, a series of facilities will be constructed. USACE determined the location of the construction of a weir to attenuate the flashy Cosgrove Creek flood flows. The weir will be built across the creek with off-stream storage on New Hogan Dam Road, just south of Valley Springs, putting diverted water to beneficial use. It will reduce peak flows from 3,800 cfs to 3,000 cfs that currently impact more than 400 people and more than 100 structures, in this 100-year floodplain. A pedestrian/bike path along Cosgrove Creek will be included with the project to connect the La Contenta area to the Valley Springs area. Recreational fields, including soccer and baseball fields, will be constructed in the inundation area. The fields will be irrigated with recycled tertiary-treated wastewater from the Calaveras County Water District La Cantata Water Treatment Plant (WTP). Vernal pools will be implemented along the creek, contributing to riparian restoration in the area. The addition of vernal pools will diversify the surrounding habitat and species, moderate seasonal flooding during storm events, and like wetlands, remove contaminants from agricultural and urban runoff. Trails coupled with tours and pamphlets will be implemented as an opportunity to contribute to public education. | Yes | Water Supply |
| San Joaquin River | Calaveras | New Hogan Reservoir Pumping Project | $ 22,000,000 | The pumping facility would be constructed on the north abutment of the old concrete dam, located approximately 0.25 miles east of the existing earthen dam. Water will be pumped over the northwest ridge of New Hogan Reservoir to a 30-acre-foot reservoir to regulate flows to three natural streams (Bear, No Name, and Indian creeks). These streams would be used for gravity-flow water conveyance. | | |
| San Joaquin River | Calaveras | Pardee Reservoir Enlargement | $ — | The Pardee Reservoir would be raised 33 feet, and maximum capacity would increase from 197,950 acre-feet to a total of 371,000 acre-feet. | | |
| San Joaquin River | Contra Costa | DA 109 Kellogg Creek Project Development | $ 220,000 | | | |
| San Joaquin River | Contra Costa | Deer Creek Reservoir Expansion | $ 2,069,000 | | | |
| San Joaquin River | Contra Costa | Deer Creek Reservoir Expansion (r/w acquisition) | $ 187,000 | | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| San Joaquin River | Contra Costa | Dutch Slough Tidal Marsh Restoration | $ — | The Dutch Slough Tidal Marsh restoration project is located at the mouth of Marsh Creek in northeast Contra Costa County. The project will restore 1,266 acres of wetland and upland habitats, including tidal marsh, oak woodland, Antioch dune scrub, and shaded riverine riparian areas. Phase 1 entails excavating approximately 750,000 cubic yards of material on Ironhouse Sanitary District (ISD) lands immediately west of the Marsh Creek flood control channel to create 100 acres of tidal marsh and riparian habitat at the mouth of Marsh Creek while cost-effectively providing fill material necessary to prepare the 1,166-acre Dutch Slough site east of Marsh Creek for tidal marsh restoration. Fill material from the Ironhouse Sanitary District lands will be used to bolster interior levees and elevate subsided areas in preparation for tidal marsh restoration at DWR's Dutch Slough project site. After excavation, the 100-acre ISD site west of Marsh Creek will be restored to a tidal marsh and riparian habitat zone especially designed to enhance the functionality of the Marsh Creek flood control channel and to biofilter polluted water emanating from the Marsh Creek watershed. The biofiltration wetland will reduce pollutants entering the Dutch Slough site and the Delta and thereby help protect the region's water quality source from degradation by nonpoint runoff. | Yes | Ecosystem |
| San Joaquin River | Contra Costa | East Antioch Creek Marsh Restoration Project | $ — | This project is located in the lower reach of East Antioch Creek between the San Joaquin River and Lake Alhambra. The reservoir rehabilitation will be conducted in two phases and has three identified goals: enhanced marsh expansion and restoration, increased tidal and storm flow capacity, and establishment of community-based conservation through public education and outreach programs. | Yes | Ecosystem |
| San Joaquin River | Contra Costa | East Antioch Creek Wetland Restoration | $ 6,895,000 | | | |
| San Joaquin River | Contra Costa | Kellogg Creek - Sedimentation Basin Creek Restoration | $ 1,750,000 | | | |
| San Joaquin River | Contra Costa | Knightsen Wetland Biofilter | $ 2,815,000 | | Yes | Water Quality |
| San Joaquin River | Contra Costa | Lower Sand Creek Basin | $ 6,190,000 | | | |
| San Joaquin River | Contra Costa | Marsh Creek channel widening (Dainty to Sand Creek Road) | $ 2,600,000 | | | |
| San Joaquin River | Contra Costa | Marsh Creek Drop Fish Passage Improvement | $ 146,000 | | Yes | Ecosystem |
| San Joaquin River | Contra Costa | Marsh Creek Reservoir Capacity Expansion | $ 1,750,000 | | | |
| San Joaquin River | Contra Costa | Marsh Creek Reservoir Emergency Spillway Assessment | $ 125,000 | | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| San Joaquin River | Contra Costa | Marsh Creek Reservoir Seismic Assessment | $ 281,000 | | | |
| San Joaquin River | Contra Costa | Marsh Creek Reservoir Seismic Rehabilitation | $ 3,500,000 | | | |
| San Joaquin River | Contra Costa | Marsh Creek Supplemental Capacity and Basin Development | $ 4,500,000 | | | |
| San Joaquin River | Contra Costa | Oakley and Trembath Detention Basins (East Antioch Creek) | $ 7,944,000 | Plans by Contra Costa County FCWCD to expand the Oakley Detention Basin and construct the Trembath Detention Basin would serve to reduce peak runoff into the main channel of East Antioch Creek during periods of heavy rainfall, increase flood storage, and control downstream flooding. With these improvements in place, the two basins would have a combined storage capacity to accommodate a 100-year storm event. Although funding for these drainage improvements has been secured, a schedule for implementation has not been determined. | | |
| San Joaquin River | Contra Costa | Sand Creek floodplain remapping study | $ 25,000 | | | |
| San Joaquin River | Contra Costa | West Antioch Creek Culverts at 10th Street (Antioch Stormwater Flood Management) | $ 5,994,600 | | | |
| San Joaquin River | Contra Costa | West Antioch Creek Improvement at Highway 4 | $ 2,000,000 | | | |
| San Joaquin River | Contra Costa | West Antioch Creek Improvements - L Street to 10th Street | $ 4,460,000 | | | |
| San Joaquin River | Madera | Temperance Dam | $ — | New surface storage in California will improve water supply and greatly needed flexibility resulting in broad public, environmental and operational benefits. With the additional capacity and integrated operation of California's water delivery system, water diversion and deliveries can be timed in ways that improve water quality, restore wildlife habitat, support fishery needs, facilitate conjunctive management and increase flood protection. | Yes | Ecosystem, Water Quality, Water Supply |
| San Joaquin River | Fresno | Temperance Flat Dam | $ 33,000,000 | This project would increase storage capacity, providing 1,200,000 acre-feet of storage and an additional 160,000 acre-feet of usable annual water. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| San Joaquin River | Madera | Ash Slough Arundo Eradication and Sand Removal Project | $ 1,922,810 | This project involves the eradication of *Arundo donax*, a non-native invasive bamboo, from critical portions of Ash Slough. Arundo blocks flood flows in the Slough and causes flood hazards, as well as fire hazards, habitat deterioration, and excessive evapotranspiration of water that could be used to recharge the overdrafted groundwater. The targeted area has been selected to prevent levee failure and flooding of the City of Chowchilla. As part of this project, the County will obtain the required permits for sediment removal from the channel, which would provide additional increased flood flow capacity. Arundo utilizes up to 20 times more water as the native grasses that will be used to revegetate the cleared areas. This is water that would otherwise percolate through the sandy soils to recharge the groundwater, be used for agricultural purposes, or flow down the Eastside Bypass into the San Joaquin River delta. | Yes | Ecosystem |
| San Joaquin River | Madera | Cottonwood, Dry and Brenda Creek Arundo Eradication and Sand Removal Project | $ 2,184,531 | There is potential for flooding on Cottonwood Creek, Dry Creek, and Berenda Creek due to invasive plant species, particularly Arundo, overgrown vegetation, and sedimentation, which lead to a lack of channel capacity. Without proper capacity, these channels are unable to carry the design flows or flood flows. Objectives of the project include:<br>1) To improve flood flows in Madera County, specifically on property, both industrial and agricultural, along Cottonwood Creek, Dry Creek and Berenda Creek<br>2) To improve Madera County's economic viability by reducing the potential for flood flows<br>3) To increase water availability in Madera County by reducing unnecessary evapotranspiration from Arundo donax infestation<br>4) To improve wildlife habitat in Madera County along Cottonwood Creek, Dry Creek, and Berenda Creek by eradicating Arundo donax and by removing excess sedimentation<br>5) To improve Madera Irrigation District's ability to deliver water to its users without capacity constraints<br>6) To provide Madera Irrigation District's growers greater flexibility in managing their water, thus improving overall irrigation efficiency and use<br>7) Eradicate Arundo from 32 miles of creeks and an area of approximately 300 acres; 8) Remove 25,000 tons of sand from 32 miles of creek bottom | Yes | Ecosystem |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| San Joaquin River | Madera | Madera Ranchos Flood Control and Water Recharge Ponding Basin | $ 2,233,950 | The project is a ponding basin to be located adjacent to the Madera Canal at the Southeast corner of Avenue 12 and Road 38, east of the Madera Ranchos community. The ponding basin will be a large pond that can be used for overflow of floodwaters to prevent the flooding of the Madera Ranchos community. Floodwaters will be held in the pond until they percolate into the ground, recharging the overdrafted groundwater in that area. Project goals are:<br>1) To develop a project that will prevent flooding of the Madera Ranchos community from 100-year flood events reduce residential community<br>2) To increase groundwater recharge in the area<br>3) To create a 120-acre-foot detention basin for flood control and groundwater recharge | Yes | Water Supply |
| San Joaquin River | Madera | Root Creek In-Lieu Groundwater Recharge Project | $ 5,000,000 | The project identified facilities necessary to provide a system for the use of surface water on lands within Gateway Village and adjacent agricultural lands. The delivery pipeline envisioned for the in-lieu program may also be utilized for delivery of water for direct recharge, as well as to a surface water treatment facility for Gateway Village. | | |
| San Joaquin River | Merced | Flood Control Protection on Black Rascal Creek | $ 1,250,000 | This is a joint project to provide alternative, lower-cost project for much-needed flood control on Black Rascal Creek. This project would be a reduced-cost alternative to the Federal Flood Control Project (Haystack Dam), which has been in progress for many years. The proposed 200-year project consists of a single 70-acre detention basin on agricultural land with a 17.5-foot embankment crest to store 1,711 acre feet of water at spillway crest and 2,534 acre feet at dam crest. The basin would be located immediately north of Yosemite Avenue and Arboleda Avenue in Merced County on Black Rascal Creek. | | |
| San Joaquin River | San Joaquin | Boggs Tract | $ 5,000,000 | Reclamation District 404 currently has several levees that have been classified as "Provisionally Accredited," and is in the process of compiling the data and documents that FEMA requires before granting full accreditation. RD 404 is in the process of repairing erosion, clearing vegetation, and repairing damage from rodent holes on one of the levees to obtain the "Provisionally Accredited" classification for its entire levee system. The Boggs Tract area flood map is also affected by Walker Slough levee to the east. San Joaquin County FCWCD is working to obtain full accreditation for the Walker Slough levee. | | |
| San Joaquin River | San Joaquin | Budlisilich Fish Passage Improvements | $ 350,000 | This project provides for improvements to the flashboard dam, which was barrier for fish. Stockton East Water District (SEWD) agreed to make improvements as part of the Anadromous Fish Program from CDFW. The project is more than 50% complete. | Yes | Ecosystem |
| San Joaquin River | San Joaquin | Farmington Groundwater Recharge and Seasonal Habitat Program | $ 33,500,000 | The objective of this program is to recharge an average of 35,000 acre-feet of water annually into the Eastern San Joaquin Basin. The recharge method of choice is field flooding, a practice where a small perimeter levee is built at the parcel, then flooded to a depth of up to 18 inches. | Yes | Water Supply |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| San Joaquin River | San Joaquin | Gill Creek and Woodbridge Rood Flood Control Improvements | $ 25,000,000 | In 2004, the San Joaquin County Department of Public Works Stormwater Management Division completed the Gill Creek and Woodbridge Road Watersheds Reconnaissance Study (Gill Creek Study) to identify and recommend a project that would provide a 100-year level of protection to structures and a 25-year level of protection to agriculture in the study area. The Gill Creek Study explored three alternatives with the following focuses:<br>• Channel enlargement<br>• Detention<br>• Diversion into the Lower Mokelumne River<br>The Gill Creek Study identified detention as the preferred alternative, which includes minor channel improvements and the construction of up to 15 detention basins covering a total area of 65 acres spread throughout the watersheds. The preferred alternative has the potential to provide addition benefits because the channels and detention basins could be used to convey Mokelumne River water for irrigation and direct recharge. The North San Joaquin Water Conservation District owns an existing 30-cfs irrigation system near Tretheway Road, extending west along Acampo Road. Improvements to the North San Joaquin Water Conservation District North Irrigation System or an additional system could serve the conjunctive water management needs of the area. The next step is to perform a feasibility study where the conjunctive use and flood control operation can be explored further and the benefits quantified. | Yes | Water Supply |
| San Joaquin River | San Joaquin | Groundwater Banking and Wisconsin Pump Station | $ 9,500,000 | This project will provide integrated stormwater management through coordinated upstream diversion and percolation of peak Calaveras River flows adjacent to the SEWD water treatment plant into flood retention and groundwater recharge ponds, together with rehabilitation and upgrade of internal Wisconsin stormwater pumping facilities discharging to the lower Calaveras River in the Wisconsin Avenue area. Conceptually, both the RD 1614 Wisconsin Avenue and SEWD pumping facilities would be sized at about 30,000 gallons per minute (gpm) (66 cfs); maximum volume for the SEWD recharge ponds would be around 1,000 acre-feet (200 acres at 5 feet deep). The flood damage reduction benefit will accrue mostly from reduced damages at moderate return intervals (e.g., 10 to 50 years). | | |
| San Joaquin River | San Joaquin | Lower San Joaquin River Flood Bypass | $ 6,125,000 | This project would increase flood conveyance capacity through a constrained reach of the San Joaquin River floodway by acquiring easements and fee title to expand Paradise Cut Bypass. The project will also provide floodplain and riparian habitat for sensitive species, including riparian brush rabbit, giant garter snake, Sacramento splittail and juvenile Chinook salmon. The project would reduce the flood stage in mainstem San Joaquin River between Vernalis and Stockton and reduce the likelihood of levee failure on the San Joaquin River in Lathrop, Manteca, and Stockton areas. | Yes | Water Supply |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| San Joaquin River | San Joaquin | MORE Water Project | $ 412,000,000 | The MORE Water Project could bring 60,000 to 100,000 acre-feet per year to the Basin. The project is planned to consist of three infrastructure projects—the Water Duck Creek Reservoir, the Water Lower Mokelumne Diversions, and the Water Storage Plus Direct Diversions Project.<br>*Lower Mokelumne Diversions*: The MORE Water Project and water right application is also seeking one or more diversions from the lower Mokelumne River. The diversions would be located along the Mokelumne River between Camanche Reservoir and Interstate 5. Under that project, up to 620 cfs would be diverted from the river at structural or nonstructural intakes. Diverted water would include only surplus spills from Camanche Reservoir, including flood flows. Under either alternative, water would be transported to the Stockton area via pipeline and Watershed Improvement District canals. Water would then be utilized during the December through June period for direct or in-lieu groundwater recharge. This project would supply an average of up to approximately 43,000 acre-feet per year during December through June.<br>*Water Storage Plus Direct Diversions*: Water would be diverted from the southern end of Pardee Reservoir, which is located on the Mokelumne River. Diverted water would be routed into a gravity-feed tunnel/pipeline that would discharge into Duck Creek, which is a tributary to the Calaveras River. In the event that Duck Creek Reservoir is not built, water would be diverted from the Calaveras River downstream of its confluence with Duck Creek. If Duck Creek Reservoir is approved and completed, water diverted from Pardee Reservoir would instead flow into the Duck Creek Reservoir. From that point, water would be transported via pipeline to agricultural users, groundwater recharge facilities or other users, or would be routed into spreading and recharge basins. The project would supply up to an average 67,000 acre-feet per year at a maximum diversion rate of 1,000 cfs. Diversion would occur only during flooding and other high-flow periods, or in anticipation of a flood event.<br>*Duck Creek Reservoir*: The proposed Duck Creek Reservoir is an approximately 150,000-acre-foot-capacity off-stream reservoir located in eastern San Joaquin County. The Duck Creek watershed drains into the Calaveras River at the divergence of the Calaveras River and Mormon Slough at Bellota. The Duck Creek dam system would consist of a 6,000-foot earthen main dam at the south end and a series of smaller saddle dams to the west. Water would be diverted at either Pardee Reservoir or Camanche Reservoir for storage in Duck Creek Reservoir. The water right application seeks to divert up to 1,000 cfs to storage and 620 cfs by direct diversion. The total maximum diversion capacity is 1,620 cfs from either Pardee Reservoir or Camanche Reservoir. Water diverted from Pardee Reservoir at a rate of 1,620 cfs would require a diversion structure and tunnel. Regulated releases from Bellota would be rediverted to the SEWD Water Treatment Plant, Mormon Slough, Potter Creek, Mosher Slough, the Lower Calaveras River, and potentially the proposed Alliance Canal for beneficial use or direct groundwater recharge. | Yes | Water Supply |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| San Joaquin River | San Joaquin | Re-Operation of New Hogan Reservoir for Flood Control | $ — | This combination of options suggests that average annual deliveries to SEWD could be increased by about 25,000 acre-feet by maximizing the available supplies from New Hogan Reservoir. The reservoir is currently operated to save a certain amount of carryover storage each year; however, the carryover requirement limits the amount of storage available in wet years. All of the carryover storage water can be used in each year by farmers who currently use groundwater for irrigation. This in-lieu recharge would result in an increase of groundwater storage that could be used during dry years. Thus, this option effectively moves carryover storage from the reservoir into the groundwater basin. If the reservoir is fully emptied before the rainy season begins, then the reservoir could capture additional flows during wet years. | Yes | Water Supply |
| San Joaquin River | San Joaquin | Westside-San Joaquin Regional Stormwater Flood Management | $ 168,890 | This project is the second phase of a larger project to increase the capacity of the California Avenue Storm Drain Basin. This new lift station will remedy the overflows during heavy storms, reduce the damage caused by the overflows, and reduce use of public resources to prevent the damage. Also, the lift station will capture the excess water for agricultural reuse. | | |
| San Joaquin River | Stanislaus | Big Bend Floodplain Protection and Restoration Project (Formerly Todd-Venn) | $ 2,605,619 | The project is located in eastern Stanislaus County approximately 5.5 miles west of the City of Modesto. The project proposes to acquire fee title to and perpetual conservation easements on approximately 167 acres and restore approximately 223 acres of the Tuolumne River floodplain. The enhanced area provides for flood damage reduction by facilitating, enlarging, and returning natural fluvial processes to the floodplain. In addition, the restored riparian corridor and its associated shaded riverine aquatic habitat, which extends approximately 2 miles on the south side of the river and 1 mile on the north side of the river, will provide enhanced habitat for a variety of fish and wildlife species. | Yes | Ecosystem |
| San Joaquin River | Stanislaus | Dos Rios Ranch | $ 22,319,754 | The Dos Rios Ranch Acquisition and Restoration Project includes more than 1,600 acres of strategically located land where the San Joaquin and Tuolumne rivers meet immediately west of Modesto. The project is a cornerstone in the development of the Tuolumne River Parkway. | | |
| San Joaquin River | Stanislaus | Ecosystem Restoration and Floodwater Attenuation Project, San Joaquin River | $ 3,565,496 | This project will benefit California by reducing flood risk liability, enhancing the ecosystem, and reducing O&M costs for flood control facilities on the San Joaquin River. The project will improve the connection of 1,535 acres of floodplain to the San Joaquin River by breaching existing levees to reduce fish entrapment and improve transient floodwater storage benefits, and it will reduce ecosystem damage from water standing for excessive periods. | Yes | Ecosystem |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| San Joaquin River | Stanislaus | New Don Pedro Reservoir Relicensing | $ — | The Don Pedro Reservoir is a Federally licensed water storage and hydroelectric generating facility located on the Tuolumne River in the Sierra Nevada foothills, approximately 130 miles east of San Francisco. As a multipurpose project, Don Pedro provides water storage for irrigation and domestic use, as well as energy from a renewable resource. Don Pedro operations also benefit fish, wildlife, and recreation resources, as well as provide flood control benefits through cooperation with the USACE. Owned 31.54% by the Modesto Irrigation District and 68.46% by the Turlock Irrigation District, the project was placed into service in 1971. It consists of a 2,030,000-acre-foot reservoir and a 203-megawatt powerhouse. The project operates under a 50-year license granted to the Districts by the Federal Energy Regulatory Commission (FERC). The current license extends through April 30, 2016. The Districts intend to obtain a new license, and will be relicensing Don Pedro using FERC's Integrated Licensing Process. Relicensing is an intricate and lengthy undertaking that will stretch over several years and will be open to public participation. | | |
| San Joaquin River | Stanislaus | Riddle Surface Mine | $ — | Calaveras Materials Inc. (CMI) proposes developing and reclaiming an aggregate (sand and gravel) surface mine and materials processing Plant Complex on two discontiguous sites totaling 436 acres in western Stanislaus County. CMI is proposing to reclaim the site to an agricultural reservoir (as a source of irrigation water for surrounding agricultural uses) and/or a flood detention component of the County's flood control system. | Yes | Water Supply |
| San Joaquin River | Stanislaus | Vierra Unit Restoration | $ 1,755,542 | The proposed project will involve 511 acres. Levee breaches will be engineered and constructed to minimize erosion, allow water circulation, and minimize fish stranding. Wetlands will be restored, including grading, water control structures, and a pump and fish screen. Riparian woodland will be restored by planting followed by 3 years of irrigation and weed control. Federal levee breaching may not occur, and the U.S. Fish and Wildlife Service (USFWS) may repair local levees to deal with fish stranding. The project would eliminate the need to repair the local levees and allow the area to be opened for flood storage. Wildlife benefits include conversion of abandoned agricultural fields, now growing exotic weeds, to 200 acres of wetlands and 311 acres of riparian forest. | Yes | Ecosystem |
| San Joaquin River | Tuolumne | Tuolumne Ditch System Sustainability Project | $ — | This project provides for the development of a Ditch System Sustainability Project, which will identify the system's values and develop management objectives, tools, and maintenance strategies that protect, manage, and enhance the multiple values of the system while improving water delivery. The goal of the project is to sustain the values of the ditch system by developing a comprehensive plan for the management of the system. | Yes | Water Supply |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | Los Angeles | Acquisition of Land in the Floodplain of the Upper Santa Clara River | $ — | This project involves the acquisition of land in the Upper Santa Clara River floodplain from willing sellers so as to restrict future floodplain development and to allow restoration of lands to a natural condition. | | |
| South Coast | Los Angeles | Acquisition of River Channel and Major Tributaries for Watershed Protection | $ — | This project involves the acquisition of riparian and floodplain parcels to limit development and preserve habitat function and other watershed benefits. | Yes | Ecosystem |
| South Coast | Los Angeles | Acton Master Drainage Plan | $ — | This project outlines the phased development of flood control facilities to mitigate flooding in the Acton community. Proposed improvements include four debris basins, five multi-use retention facilities, and low-impact water quality enhancement flood control facilities. | Yes | Water Quality |
| South Coast | Los Angeles | As-Needed Design Services - Debris Basins and Sediment Placement Sites | $ 1,000,000 | This would establish and administer (on a 3-year, as-needed basis) the design services contracts for debris basins and sediment placement site (SPS) projects. | | |
| South Coast | Los Angeles | Bartolo Pump Stations Instrumentation and Control System Upgrade | $ 975,000 | This upgrade would replace a diaphragm-type pressure transducer with a new submersible-type level transmitter and would upgrade the lighting and control system. | | |
| South Coast | Los Angeles | Big Dalton Dam Sluice Gate Modification | $ 1,500,000 | This project included extensive, clearing/grubbing, water diversion, dewatering, processing 200,000 tons of sediment, onsite and offsite production hauling on switchback mountain roads, scaling, traffic control, geotextile/riprap, RCP, shoring, subdrain system, cut/fill/fine-grade earthwork, road construction, subdrains, filter material, reinforced concrete structures, weir gate, sluice gate, trash rack retrofit, silt fence, security fence, hydroseeding, and more such tasks. | | |
| South Coast | Los Angeles | Big Dalton Reservoir Sediment Removal | $ 26,000,000 | | | |
| South Coast | Los Angeles | Big Dalton, Little Dalton and Sawpit Debris Basin Seismic Rehabilitation | $ 4,300,000 | Big Dalton Debris Basin is a dam under the jurisdiction of the DWR, Division of Safety of Dams (DSOD). Currently, it does not meet DSOD seismic requirements. Los Angeles Department of Public Works (LADPW) intends to seismically upgrade the spillway walls and outlet tower. Sawpit Debris Basin is a dam under the jurisdiction of the DWR's DSOD. Currently, it does not meet DSOD seismic requirements. LADPW intends to seismically upgrade the spillway walls, add a new outlet tower, and provide erosion protection on the downstream dam face to comply with dam regulations. | | |
| South Coast | Los Angeles | Big Tujunga Dam Underground Utility Improvement Project | $ 1,000,000 | | | |
| South Coast | Los Angeles | Big Tujunga Reservoir Post-Fire Sediment Removal | $ 34,000,000 | This project involves the excavation of sediment within the Big Tujunga Reservoir and the deposition of the sediment in the Maple Canyon Sediment Placement Site, located in Big Tujunga Canyon in the Angeles National Forest. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | Los Angeles | Big Tujunga Reservoir Sediment Removal | $ 245,000,000 | | | |
| South Coast | Los Angeles | Big Tujunga Wash Mitigation Bank Management | $ 2,500,000 | The Big Tujunga Wash Mitigation Bank project encompassed a 100-acre site of willow riparian, oak/sycamore woodland, and coastal sage scrub terrain overrun with Arundo and other non-native plant species. This public works project demanded economical use of public funds and a light footprint that would preserve thriving native species while eliminating exotic species that interlaced it. | Yes | Ecosystem |
| South Coast | Los Angeles | Bracemar Debris Basin Enlargement | $ 500,000 | | | |
| South Coast | Los Angeles | Cogswell Dam Inlet/Outlet Works Rehabilitation | $ 3,000,000 | This project is to rehabilitate valves, electrical systems, control systems. | | |
| South Coast | Los Angeles | Cogswell Reservoir Post-Fire Sediment Removal | $ 22,000,000 | The removal procedure will consist of dewatering Cogswell Reservoir and then removing sediment from approximately 131.7 acres of the reservoir, using heavy equipment such as excavators, bulldozers, and dump trucks. | | |
| South Coast | Los Angeles | Cogswell Reservoir Sediment Removal | $ 145,000,000 | | | |
| South Coast | Los Angeles | Compton Creek Pump Station Number 1, Replace) Engines and Main Pumps | $ 1,500,000 | The project is to replace three engines and three main pumps, as well as upgrade the existing liquefied petroleum gas (LPG)-fueled backup system. | | |
| South Coast | Los Angeles | Deer Debris Basin Enlargement | $ 500,000 | | | |
| South Coast | Los Angeles | Del Valle Sediment Placement Site - Construct Foundation | $ 630,000 | The project is to construct foundation of a new sediment placement site at the County Fire Department's Del Valle Training Facility in Val Verde. | | |
| South Coast | Los Angeles | Devils Gate Reservoir Post-Fire Sediment Removal | $ 37,000,000 | This project is for removal of sediment and debris from the reservoir behind Devil's Gate Dam to restore flood control capacity and establish a reservoir configuration more suitable for routine maintenance activities, including sediment management. | | |
| South Coast | Los Angeles | Dunsmuir Sediment Placement Site Landscaping Installation | $ 1,000,000 | This project will install landscaping on finished fill slopes at Dunsmuir SPS. Plans, specifications, and estimate (PS&E) is expected in FYs 2011-12 and 2012-13. The project will be advertised in FY 2012-13, and will be awarded in FY 2013-14. The project will acquire container stock in FY 2013-14 and will be installed in FY 2014-15. | | |
| South Coast | Los Angeles | Eaton Dam Inlet/Outlet Works Rehabilitation | $ 5,700,000 | This is a project to rehabilitate, replace, and construct flood control facilities from Eaton Wash Dam and Reservoir - Inlet/Outlet Works Rehabilitation, in the City of Pasadena. | | |
| South Coast | Los Angeles | Eaton Reservoir Sediment Removal | $ 20,000,000 | | | |
| South Coast | Los Angeles | Englewild Debris Basin Enlargement | $ 500,000 | | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | Los Angeles | Evaluation of Inlet/Outlet Works at County Department of Public Works Dams | $ 1,195,000 | The Dams Section ($200,000) is to head the Review Committee on Dam Safety Valve Subcommittee; investigate and develop recommendations for valve maintenance, repairs and replacements, including both planning and emergency repairs; manage implementation of recommendations; manage contracts with Bureau of Reclamation and Metropolitan Water District (MWD) for inspections/evaluations and repair (MWD only) of inlet/outlet works and electro-mechanical equipment. Service contracts to implement recommendations of Valve Committee will include a contract for inspections/evaluations/repairs and/or an as-needed repair contract through the process of Request for Proposals ($150,000). Operations Services Division to provide preventive maintenance program. | | |
| South Coast | Los Angeles | Goss Debris Inlet Enlargement | $ 500,000 | | | |
| South Coast | Los Angeles | Installation of Pumps Improve Basin Drainage | $ 300,000 | This project provides for seven pump installations and/or nuisance water diversion improvements. | | |
| South Coast | Los Angeles | Irving Debris Basin Enlargement | $ 500,000 | | | |
| South Coast | Los Angeles | Joint Water Pollution Control Plant (JWPCP) Marshland Enhancement Project | $ 2,637,065 | This project restores the vegetation and wildlife habitat value of the 17-acre freshwater JWPCP marshland, which provides stormwater treatment and flood control. The project includes educational and recreational facilities. | Yes | Ecosystem |
| South Coast | Los Angeles | Linda Vista Debris Basin Enlargement | $ 1,530,000 | The project will increase the undersized debris basin to meet 1 DDE capacity and will replace the existing dam with a new crib dam and outlet tower. Property Condition Report approved in 1995 update under F010. F115 including National Environmental Policy Act (NEPA) and CEQA documentation, permits, PS&E, and civil engineering. | | |
| South Coast | Los Angeles | Live Oak Reservoir Sediment Removal | $ 3,500,000 | | | |
| South Coast | Los Angeles | Los Angeles County General Dam Rehabilitation Projects | $ 75,000,000 | A committee of dam engineers from DSOD, Los Angeles County Department of Public Works, Metropolitan Water District of Southern California, and the USACE rated the dams in Los Angeles County based on three factors:<br>1) Facility condition, which includes physical condition of the dam, amount of deferred maintenance, frequency of dam inspections, condition of monitoring instrumentation, and identification of any unsafe conditions at the dam<br>2) Facility age vs. useful life, which rates the facility based on its age, whether or not it has received significant rehabilitation, and if it meets relevant standards for its current use<br>3) Capacity to meet current and projected demands, which addresses whether or not the facility meets its original purpose and function (has capacity been reduced or restricted?) and if it can withstand anticipated physical demands such as floods and earthquakes | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | Los Angeles | Malibu/Cuyama - Integrated Watershed Protection Plan - Projects | $ 2,500,000 | | | |
| South Coast | Los Angeles | Manhattan Beach Pump Station Ball Valve System Rehabilitation | $ 400,000 | The project is to replace two ball valves on discharge lines with new self-contained electro-hydraulic actuators and upgrade the entire control system to integrate with the central controller and associated works. | | |
| South Coast | Los Angeles | Marina Del Rey and Ballona Creek Feasibility Study Sediment Control Management Plan | $ — | This study analyzes the area's hydrology, oceanographic processes, water quality, sediments, biological resources, and economics under existing and future conditions with- and without-project implementation. | Yes | Water Quality |
| South Coast | Los Angeles | May and Dunsmuir Sediment Placement Sites - Design | $ 82,000 | This project provides for the preparation of interim and ultimate fill plans. | | |
| South Coast | Los Angeles | Morris Dam Inlet/Outlet Works Rehabilitation | $ 9,600,000 | The project involves rehabilitation and replacement of runoff regulation facilities, new control system and control house, and electrical rehabilitation at Morris Dam in the Angeles National Forest for a change related to the rehabilitation of Outlets 2 and 5. | | |
| South Coast | Los Angeles | Morris Dam Water Supply Enhancement Project | $ 13,258,175 | This project will lower the operational pool behind Morris Dam by upgrading the dam's control structures to allow more stormwater to be captured for recharge at downstream spreading grounds. | Yes | Water Supply |
| South Coast | Los Angeles | Morris Reservoir Sediment Removal | $ 105,000,000 | | | |
| South Coast | Los Angeles | Mullally Relief Drain | $ 1,000,000 | This is the expansion of the Mullally Drainage Basin and the installation of an additional storm drain to serve as an overflow in the event of a clog. | | |
| South Coast | Los Angeles | North Atwater Creek Restoration Project | $ 5,600,000 | This project will construct water quality physical and structural improvements to an area along the Los Angeles River. The project will restore the creek at the North Atwater Park for stormwater runoff capture and treatment, and will provide wetlands habitat linkage to the Los Angeles River. Two acres of wetland habitat will be created. | Yes | Ecosystem |
| South Coast | Los Angeles | North Valleyheart Greenway Project | $ 2,100,000 | This project will construct the North Valleyheart Greenway. | | |
| South Coast | Los Angeles | Nuisance Water Improvements | $ 338,397 | This project addresses nuisance water improvements at various locations. | | |
| South Coast | Los Angeles | Operation and Maintenance Projects for Los Angeles County Dams (annually, over 5 years) | $ 250,000,000 | Projected O&M costs for rated the dams in Los Angeles County. | | |
| South Coast | Los Angeles | Oxford Basin Multi-use Project | $ 6,330,000 | | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | Los Angeles | Pacoima Dam Hoist and Hoist Operating House | $ 1,500,000 | This provides for installation of a hoist; construction of a hoist operator house, a rockfall barrier system, and a liquid petroleum gas tank; construction and repair of retaining walls; removal of existing power poles and lines. | | |
| South Coast | Los Angeles | Pacoima Dam Inlet/Outlet Works Rehabilitation | $ 1,750,000 | This project will replace valves, add a jet flow gate, and modify risers/trash racks. | | |
| South Coast | Los Angeles | Pacoima Dam Jet Flow/Gate Valve for Sluiceway | $ 1,500,000 | | | |
| South Coast | Los Angeles | Pacoima Reservoir Sediment Removal | $ 200,000,000 | This project is to remove up to 3 million cubic yards of sediment from the reservoir. NEPA/CEQA documentation and permits from USFS, USACE, CDFW, and Regional Water Quality Control Board. FY 2008-09: PS&E and SPS Landscape, USFS review of PS&E, review of Draft NEPA/CEQA documentation. | | |
| South Coast | Los Angeles | Puddingstone Diversion Dam Outlet Works Improvement | $ 500,000 | This project provides a backup gate to replace a backup slide gate in the Puddingstone Dam outlet tunnel, in the City of San Dimas. | | |
| South Coast | Los Angeles | Puddingstone Diversion Reservoir Sediment Removal | $ 9,500,000 | | | |
| South Coast | Los Angeles | Reservoir Operations-Forecast Services | $ 435,000 | This is a project to provide Architectural Engineering Division services; service contract for weather forecasting to assist water conservation and flood control operations. | | |
| South Coast | Los Angeles | Rowley Upper Debris Basin Enlargement | $ 500,000 | This project is for the enlargement and expansion of Rowley Upper Debris Basin. | | |
| South Coast | Los Angeles | Safety Investigations of Dams | $ 1,500,000 | This project covers Dams Section ($575,000), resources for Review Committee on Dam Safety reports/meeting/activities, Dam Safety Monitoring Program, reports to State, identification and remediation of issues affecting the safe performance of dams; and managing the Dams Rehabilitation Program, including development of concepts. Also one consultant contract per year ($150,000 each) for evaluation or resolution of dam safety concerns (e.g., evaluation of movement/spilling at Morris Dam Open Joint, geophysical testing for voids within embankment at Puddingstone Dam). | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | Los Angeles | Safety Investigations of Debris Dams | $ 1,350,000 | Debris Dams are debris basins under jurisdiction of California DSOD. For Dams Section ($300,000), resources identified are to implement Dam Safety Monitoring Program, prepare reports to State, identification and remediation of issues affecting the safe performance of Debris Dams. Initiate Draft Independent Evaluation Plan for Debris Dams. Other DSOD resources include time for field investigations and preparation of Dam Safety Monitoring Reports for submittal to State and participation in MIDAS (Geotechnical and Materials Engineering Division $125,000, Survey $150,000, design $25,000). Work and resources also include MIDAS review of nonjurisdictional DB's at request of Facilities Management Division, and investigation of Private Small Dams at request of Land Development Division. | | |
| South Coast | Los Angeles | San Dimas Reservoir Sediment Removal | $ 43,000,000 | | | |
| South Coast | Los Angeles | San Gabriel Dam Browns Gulch Access Bridge | $ 1,900,000 | Project will replace the existing bridge across Browns Gulch on the San Gabriel Dam access road. The existing bridge does not meet current standards | Yes | Transportation |
| South Coast | Los Angeles | San Gabriel Reservoir Sediment Removal | $ 395,000,000 | Remove up to 4 million cubic yards from the reservoir over 3 years. Work for NEPA/CEQA documentation to be done under San Gabriel Sediment Management Plan Routine Carbon Monoxide Permits, completion in Spring 2012. New reservoir and SPS surveys in FY 2010-11. Property Condition Report; PS&E award, start of civil engineering in FY 2012-13. | | |
| South Coast | Los Angeles | San Ramon Canyon Stormwater Flood Reduction Project | $ 9,464,728 | The San Ramon Canyon Stormwater Flood Reduction Project will help achieve a number of the objectives of the Greater Los Angeles Area IRWM Plan. The project's primary objective is to manage stormwater runoff to reduce flood damage. In support of that objective, the project will also divert moderate and heavy stormwater flows away from highly erodible canyon walls, which will reduce or eliminate undermining of an arterial roadway, reduce or eliminate sediment and debris transport onto a primary access road, and reduce or eliminate risk of mudflows (up to a 500-year event) through a mobile home neighborhood of 500 residents. The project will also improve stormwater runoff by routing "first flows" over existing natural streambeds, and it will restore habitat by protecting the existing streambed and surrounding ecosystem. | | |
| South Coast | Los Angeles | Santa Anita Dam Riser Modification and Reservoir Sediment Removal Project | $ 9,500,000 | The proposed project consists of draining the Santa Anita Reservoir, removing sediment and debris from the reservoir by dry excavation, transporting the sediment from the reservoir via conveyor belt system, and placing it in the Santa Anita Sediment Placement Site. The project also consists of Santa Anita Dam modifications, including the construction of a new riser. | | |
| South Coast | Los Angeles | Santa Anita Dam Seismic Remediation and Spillway Modification | $ 32,259,608 | This project will enlarge the dam spillway, add a seismic buttress, and upgrade inlet/outlet works. Potential Proposition 1-E grant funding was to be determined. | | |
| South Coast | Los Angeles | Santa Anita Debris Basin Retrofit Project | $ 10,000,000 | The debris basin dam rehabilitation project will bring the debris basin in compliance with DSOD. Potential Proposition 1E candidate. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | Los Angeles | Santa Anita Reservoir Mitigation Landscaping at Sediment Management Site | $ 632,000 | This project started design in FY 2010-11 and will be ready for award in fall 2013. . | | |
| South Coast | Los Angeles | Santa Anita Reservoir Sediment Removal | $ 39,000,000 | | | |
| South Coast | Los Angeles | Sediment Management Site No. 1 | $ 250,000 | This project will develop a new sediment management site as determined by the Sediment Management Strategic Plan, and likely includes property acquisition. | | |
| South Coast | Los Angeles | Sediment Management Site No. 2 | $ 250,000 | This project will develop a new sediment management site as determined by the Sediment Management Strategic Plan, and likely includes property acquisition. | | |
| South Coast | Los Angeles | Sediment Management Site No. 3 | $ 250,000 | This project will develop a new sediment management site as determined by the Sediment Management Strategic Plan, and likely includes property acquisition. | | |
| South Coast | Los Angeles | Sediment Management Site No. 4 | $ 250,000 | This project will develop a new sediment management site as determined by the Sediment Management Strategic Plan, and likely includes property acquisition. | | |
| South Coast | Los Angeles | Sediment Management Strategic Plan - Implementation | $ 1,170,000 | This project will develop project concepts for recommendations included in the Sediment Management Strategic Plan. This could include the preliminary efforts for property acquisition, agreements with aggregate processors for reuse, or developing concepts for other final placement locations, including coordination of environmental documentation and permitting. | | |
| South Coast | Los Angeles | Sediment Placement Sites Master Plans | $ 124,000 | This project will prepare master plans incorporating better access and screening of SPS locations. Related activities that began in FYs 2009-10 and 2010-11 were done under O&M Sediment Placement Sites. | | |
| South Coast | Los Angeles | Sombrero Debris Basin Enlargement | $ 500,000 | This project will enlarge the Sombrero Debris Basin. | | |
| South Coast | Los Angeles | Storm Drain Construction Project | $ 600,000,000 | | | |
| South Coast | Los Angeles | Stream Gage - Project Concept, Design, and Construction | $ 2,750,000 | This project develops concepts for new gauging stations or to improve existing stations, design the appropriate structures and equipment housing, and construct the project using force account labor. | | |
| South Coast | Los Angeles | Sullivan Debris Basin Enlargement | $ 500,000 | This project will enlarge the Sullivan Debris Basin. | | |
| South Coast | Los Angeles | Thompson Creek Reservoir Sediment Removal | $ 3,500,000 | | | |
| South Coast | Los Angeles | Tujunga Spreading Grounds Enhancement Project | $ 24,000,000 | Tujunga Spreading Grounds Enhancement Project will improve water supply, water quality, flood control, and open space enhancements, native habitat, and wetlands with passive recreational and educational opportunities. | Yes | Water Supply |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | Los Angeles | Upper Santa Clara River San Francisquito Creek Arundo and Tamarisk Removal Project | $ 726,500 | This project will restore riparian habitat, increase water quantity, improve water quality, and reduce flood and wildfire hazards through the removal of invasive plant species in the Upper Santa Clara River watershed. | Yes | Ecosystem |
| South Coast | Los Angeles | Upper Sunset Debris Basin Enlargement | $ 250,000 | This project will enlarge the Upper Sunset (Canyon) Debris Basin. | | |
| South Coast | Orange | Aliso Creek Mainstream Restoration Project | $ 25,000,000 | This project is for restoration of a rare coastal stream in Orange County that has been subjected to a variety of degradations. This project will recontour, establish better channel gradient (pools and riffles) by stair-step benching, eliminate non-native vegetation, plant natives, and repair an oxbow meander. This would effectively reestablish riparian wildlife corridor in area of concern. Restoration of corridor on larger scale is being envisioned. Also, a small coastal zone freshwater wetland would be reestablished. | Yes | Ecosystem |
| South Coast | Orange | Bolsa Chica Channel | $ 14,000,000 | This project establishes a Retarding Basin. | | |
| South Coast | Orange | Borrego Canyon Wash Stabilization and Restoration Project | $ 3,232,000 | Borrego Canyon Wash, a tributary of San Diego Creek, drains an area about 5.2 square miles in the upper Newport Bay watershed. It has experienced severe destabilization, including accelerated streambed and bank erosion, in recent times. Studies have identified Borrego Wash as the source of approximately one-half of the sediment discharged to Newport Bay during very wet years. Stream erosion and sedimentation adversely impact water quality beneficial uses of San Diego Creek and Newport Bay, for which a sediment TMDL was adopted in 1998 to address impairment due to excessive sedimentation. To prevent further degradation, loss of property and to comply with the sediment TMDL, the County, with the aid of the State Water Resources Control Board, completed a feasibility study that provided fluvial modeling and recommended stabilization control measures with conceptual designs. This project will implement the bank stabilization and restoration measures identified in the study. | Yes | Water Quality |
| South Coast | Orange | Brea Creek Channel | $ 8,400,000 | This project provides for a bridge at Beach Boulevard. | | |
| South Coast | Orange | Brookhurst Widening Bio-Swale and Synthetic Turf Installation | $ 1,600,000 | This project will use remnant parcels left over from "full takes" of residential properties to create several linear bioswales. The bioswales will collect rain and dry weather flows from the curbline via reverse curb drains and will treat and infiltrate these flows, with overflow being released to the storm drain system following treatment. Additionally, drought-tolerant plants, along with one-third acre of synthetic turf, will be installed to reduce landscape water use. | Yes | Water Quality |
| South Coast | Orange | Carbon Creek Channel | $ 43,600,000 | This project provides for reconstruction of undersized storm drain lines, and will construct ultimate improvements to convey the 100-year storm event, which will remove/reduce the FEMA special flood hazard area (SFHA). | | |
| South Coast | Orange | Cypress Pump Station | $ 14,000,000 | This project will provide a Pump Station. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | Orange | East Garden Grove Wintersburg (EGGW) Channel | $ 181,279,000 | The existing channel is an earthen-bottom trapezoidal levee channel. It is 20 feet wide at the base with wall height averaging 13 feet. Side slopes are 1.5:1 (horizontal: vertical) lined with riprap rocks. Constructed in 1960s, it was designed to convey 65% of the 25-year peak discharge. Access roadways are located on both sides of the channel for maintenance vehicular access. The proposed improvement includes a reinforced concrete-lined channel with a 60-foot base width and channel height varying between 17 to 18 feet high with maintenance roads on both sides of the channel. The land use element surrounding this channel segment consisted of a mixed residential single-family to low- to medium-high-density residential and general commercial neighborhood on both sides of the channel. The general area is under Zone A of the FEMA FIRM Panel No. 06059C0251J dated December 3, 2009. Plans and engineering specifications will be prepared for the construction of the improvement of the 2,953-foot segment of the EGGW Channel for the specified project limits. Regulatory permits will be applied for the USACE, the Regional Water Quality Control Board, and CDFW. | | |
| South Coast | Orange | East Garden Grove Wintersburg Channel Urban Runoff Diversion Project, Phase I | $ 5,488,700 | The East Garden Grove Wintersburg Channel Urban Runoff Diversion Project - Phase I is a Santa Ana Regional Water Quality Control Board-approved Supplemental Environmental Project. The East Garden Grove Wintersburg Channel (EGGWC) is a regional facility in a highly urbanized watershed that conveys dry weather urban runoff and stormwater from seven cities in the County of Orange to the Pacific Ocean by way of Huntington Harbour. The project will divert dry weather urban runoff from the EGGWC through an existing storm drain system to the proposed constructed wetland treatment system within Central Park. The wetland treatment consists of three linear wetland features encompassing open water and channel areas through which diverted channel flows would move and be subjected to a series of natural treatment processes that would improve overall water quality. The project will maximize pollutant removal by subjecting the flow to several phases of treatment and various processes. Following treatment, treated urban runoff will be used to rehabilitate Talbert Lake and recharge the groundwater aquifer in the project vicinity. | | |
| South Coast | Orange | Fletcher Basin Rehabilitation | $ 5,000,000 | Fletcher Basin is owned by Orange County Flood Control District (OCFCD) and was formerly used to impede stormwater flow prior to discharge into the Santa Ana River. Currently, the site is used to dispose of excess soils. This project would convert Fletcher Basin into a recharge basin and make improvements to enhance flood control. This project would include excavating the basin of excess soils; cleaning, hauling and disposing of soils; construction of an influent pipeline and inlet/outlet structure into the basin; construction of a low-flow channel to route nuisance water directly to the Fletcher Channel; installation of a pump to evacuate the water into Fletcher Channel in the event of a forecasted storm or for cleaning; and construction of improvements to Fletcher Channel (concrete vertical walls) downstream from Fletcher Basin. | Yes | Water Supply |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | Orange | Fletcher Channel and Retarding Basin | $ 5,000,000 | This project addresses the Santa Ana River Channel) to the upstream Fletcher Retarding Basin. | | |
| South Coast | Orange | Fullerton Creek Channel | $ 26,600,000 | The channel has experienced lining failures and overtopping during recent years. The proposed project will increase channel conveyance capacity for a 100-year storm event. To accomplish this, the existing trapezoidal channel will be replaced with a vertical wall rectangular channel that will be constructed within the existing right-of-way. | | |
| South Coast | Orange | Gisler Storm Channel | $ 2,000,000 | This project is located along Fairview Road to 400 feet upstream of Fairview, including a crossing. | | |
| South Coast | Orange | Gobernadora Multi-Use Flood Control Detention Basin Facility | $ 14,009,085 | This project is proposing to construct the Gobernadora Multipurpose Basin Project in the South Orange County Watershed Management Area. The project will consist of an urban runoff and storm/flood detention basin that will be established as a wetland and riparian habitat, a collection system to capture and divert flows from the constructed wetlands, a pump station, and pipeline to connect to the existing Portola Reservoir system. The Basin will be utilized to reduce storm peak flows by flood storage, divert and naturally treat urban runoff and storm flows to •reduce downstream erosion and sedimentation,•address excessive surface water and groundwater, and •improve the water quality in the Gobernadora Creek and San Juan Creek, including the downstream Gobernadora Ecological Restoration Area. | Yes | Ecosystem |
| South Coast | Orange | Haster Retarding Basin and Pump Station | $ 15,677,100 | Haster Retarding Basin and Pump Station over the years has experienced flooding in surrounding areas due to flooding of the existing basin and its inability to handle the 100-year peak storm flow. Analysis of the current basin has shown that the basin can handle only the equivalent of a 5-year storm event and needs to be upgraded. Presently, Haster Retarding Basin serves a dual role as a flood control facility and as a community park (Twin Lakes Freedom Park). Regrading the basin and installation of a new pump station is proposed at the Haster Retarding Basin to eliminate flooding of adjacent areas and provide 100-year flood protection. The proposed pump station is intended to be built at the southwest corner of the basin, which will allow existing park uses to continue. The improvements are intended to eliminate basin flooding while maintaining the existing discharge at the downstream outlet to avoid flooding at Aspenwood. | Yes | Recreation |
| South Coast | Orange | Houston Storm Channel | $ 7,000,000 | This project will repair a series of deficient culverts alongside State Route (SR) 91. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | Orange | Industrial Way Water Quality and Storm Drain Improvement Project | $ 3,000,000 | The hydrology analysis conducted for this watershed concluded that the flow is larger than the capacity of the existing system by 340 cfs. The City of Costa Mesa has determined that an upgrade is required. A computation was performed to determine the size of the upgrade, which is proposed to be 10 feet in diameter or equivalent. This project proposes the installation of a parallel underground storm drain system from Pomona and 18th Streets to Newport Boulevard within the public right-of-way, and construction of at least two detention basins within the project limits to encourage the natural percolation of low-flow runoff into the ground. This new system will incorporate treatment measures, including engineered treatment structures, bio-filtration systems, and gross pollution filtration devices to comply with National Pollutant Discharge Elimination System (NPDES) requirements. To eliminate flooding and the current pollution problems caused by the lack of this system, the City of Costa Mesa has partnered with the City of Newport Beach, the Costa Mesa Sanitary District, and Orange County Sanitation District to eliminate the adverse effects of the flooding. This project is not an operable segment of a larger project; however, it does address a larger problem where excessive rainwater would inundate treatment plants to capacity, which would cause wastewater to flow backward and manholes to pop open releasing polluted water onto the street and eventually into the ocean. | | |
| South Coast | Orange | Laguna Canyon Channel | $ 23,000,000 | This project provides general telephone and electronics facilities to El Toro Road. | | |
| South Coast | Orange | Lane Channel | $ 32,600,000 | The areas covered by this project include upstream of Jamboree Road to downstream of Main Street under Phase 1; and downstream of Main Street to 1,000 feet downstream of Redhill Avenue, upstream Redhill Avenue to downstream SR 55, F05 confluence to upstream Jamboree Road under Phase 2. | | |
| South Coast | Orange | Miraloma Recharge Basin | $ 6,100,000 | The project will consist of a recharge basin, which will be excavated over most of the 13-acre site to a depth of roughly 10 feet below existing ground level. Excavation will require removal and disposal of roughly 177,000 cubic yards of soil. The wetted area of the basin will be approximately 11 acres. At an average water depth of 10 feet, the basin will retain roughly 110 acre-feet of water. Given similar geology and proximity, it is estimated that the percolation capability of the proposed Miraloma Basin will be similar to that of Kraemer Basin. The average annual Kraemer Basin recharge rate of 2.7 feet per day can be used to estimate the recharge rate of the Miraloma Basin. Assuming that the Miraloma Basin is 11 acres, the recharge capacity is estimated to be 11 acres times 2.7 feet per day, or 30 acre-feet/day. On an annual basis, this corresponds to approximately 10,000 acre-feet per year. | Yes | Water Supply |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | Orange | Modjeska Park Parking Detention/Infiltration Facility | $ 250,000 | The project utilizes an existing 37,000-square-foot parking lot (at Modjeska Park) footprint to install an underground detention/infiltration facility. It consists of the removal of the existing paving surface, excavation, and construction of inlet and outlet reinforced concrete structures, and the installation of a detention/infiltration reinforced concrete box to capture the stormwater flows from the existing 48-inch RCP storm drain flowing south along Nutwood Avenue. Stormwater captured will percolate through the basin invert and replenish the groundwater table. It also includes back filling, paving of the existing parking lot, striping, and all work shown on the construction documents. | Yes | Water Supply |
| South Coast | Orange | Newland Storm Channel | $ 20,000,000 | The project is located at C05 to downstream of McFadden Avenue under Phase 1; and downstream of McFadden Avenue to Bolsa Avenue under Phase 2. | | |
| South Coast | Orange | Oceanview Channel | $ 10,345,000 | The project is located at the confluence with C05 to downstream of Beach Boulevard, upstream of Beach Boulevard to downstream of Newland Street, and downstream of Bushard Street to downstream Brookhurst Street. | | |
| South Coast | Orange | Orange County Regional Stormwater Infiltration Program | $ 2,000,000 | The project will create a program to develop new regional infiltration facilities and expand existing facilities to capture stormwater runoff from new development and significant redevelopment at various sites throughout Orange County where onsite capture and infiltration are feasible due to site constraints, such as soil conditions, groundwater levels, and soil or groundwater contamination, or has potential to cause or contribute to degradation of groundwater quality. | Yes | Water Quality |
| South Coast | Orange | Patterson Street Storm Drain Upgrade | $ 3,600,000 | The Patterson Street Storm Drain Upgrade Project consists of reconstructing the existing storm drain line located underground at the intersection of Knott Street and Patterson Street. The current condition of the slope is allowing for the accumulation of stagnant water. The City plans to correct this problem by retrofitting the line to the proper physical slope. | | |
| South Coast | Orange | Peters Canyon Channel | $ 26,600,000 | The project is located at the San Diego Creek (F05) confluence to downstream of Barranca Parkway, upstream of Barranca to upstream of Warner Avenue under Phase 1; and from Barranca Parkway to Warner Avenue under Phase 2. | | |
| South Coast | Orange | Raymond Basin Enhancement Project | $ 3,600,000 | Raymond Basin is a flood control retarding basin owned by OCFCD that was constructed and placed into service in 1952. The basin is located along Carbon Creek Channel and is an important part of OCFCD's regional facility network. The basin comprises two separate basins (north and south) separated by a bypass channel with a double sideweir inlet spillway. Orange County Water District (OCWD) water sources enter the basins through concrete pipelines. OCFCD allows OCWD to recharge water, provided the inflow matches the percolation rate (i.e., no stored water). OCWD historically has used Raymond Basin during OCFCD's summer period only (from April 15 to October 15 of any given year) because OCFCD requires OCWD to have a pump station to evacuate the water in the storm season. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | Orange | Rossmoor Storm Channel | $ 2,000,000 | The project provides for a storm channel at Los Alamitos Boulevard to Farquhar Avenue (Sta. 54+34 to Sta. 78+52). | | |
| South Coast | Orange | San Juan Creek Channel | $ 27,656,000 | This project is at Stonehill Drive to 2,100 feet upstream of Stonehill Drive (Sta. 51+00 to Sta. 72+00) (right side) under Phase 5; and 2,100 feet upstream of Stonehill Drive to 6,035 feet upstream of Stonehill Drive (Sta. 72+00 to Sta. 111+35) (right side) under Phase 4. | | |
| South Coast | Orange | Santa Ana Gardens Channel | $ 11,200,000 | The project is located downstream of Alton Avenue to Segerstrom Avenue. | | |
| South Coast | Orange | Santa Ana-Delhi Channel | $ 12,350,000 | The project is located at the Back Bay, downstream of University Avenue to downstream of Mesa Drive. | | |
| South Coast | Orange | Santa Ana-Santa Fe Channel | $ 21,000,000 | The project is located at the confluence of the channel with F06 to upstream of Redhill Avenue. | | |
| South Coast | Orange | Santa Margarita Water District Gobernadora Multipurpose Basin Project | $ 9,009,085 | Components of this project include the following:<br>1) Urban runoff water quality basin to improve water qualify for downstream riparian and wetlands areas<br>2) Stormwater detention basin to protect downstream wetlands and riparian habitat from further erosion and deposition damage<br>3) Collection system to capture and harvest drainage flows for recycled water use in the existing Portola Reservoir<br>4) Regional trail link for overall trail connection from Thomas F. Riley Park to Caspers Wilderness Regional Park | Yes | Water Quality |
| South Coast | Orange | Serrano Creek Restoration Plan | $ 3,345,212 | Serrano Creek, a tributary of San Diego Creek, drains an area of about 2,590 acres in the upper watershed for the Newport Bay. Serrano Creek is in the Newport Bay Watershed. The Newport Bay currently has a Sediment TMDL, which is linked in part to the severely eroding banks in Serrano Creek. The banks of Serrano Creek have undergone substantial erosion due to upstream development in recent years. As a result, private property and public trails are at risk, riparian habitat is degraded and open space has been lost. In general, sediment supply to the unimproved stream has been reduced and local runoff has increased both in peak flow and duration. This project will implement bank stabilization and restoration measures for portions of Serrano Creek Reach 2, between Trabuco Road and Portola Parkway, in the City of Lake Forest. | Yes | Water Quality |
| South Coast | Orange | Trabuco Creek Channel | $ 25,800,000 | The project is located 300 feet upstream of the confluence to 300 feet upstream at Del Obispo Street (Sta. 19+00 to Sta. 42+20) under Phase 7, and 300 feet downstream of Del Obispo to 1,600 feet upstream of Del Obispo (Sta. 42+20 to Sta. 61+00) under Phase 8. | | |
| South Coast | Orange | Westminster Channel | $ 37,900,000 | The project is located is from Bolsa Chica Road to upstream Springdale Street/Edinger Avenue, and from upstream Springdale Street/Edinger Avenue to downstream Bolsa Avenue. | | |
| South Coast | Orange | Wood Canyon Emergent Wetland Project | $ 204,000 | This project provides construction of emergent wetland to enhance habitat, support functions/values, improve water quality, and mitigate channel incision, degradation, and flooding. | Yes | Ecosystem |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | Orange | Yockey/Newland Storm Drain Line B-5 Phase 2 | $ 5,067,000 | The City of Garden Grove is proposing to construct the Yockey/Newland Storm Drain Phase 2. In actuality, this project is part of a larger project that encompasses a total of six separate phases, which were identified as priority number one in the City's Master Plan of Drainage. Phase 1 of the Yockey/Newland project was successfully completed in June 2010. The flood control project involves construction of a new storm drain to reduce flooding in the southwest area of the City between Newland Street and Magnolia Avenue from the Westminster Channel to Stanford Avenue. The storm drain conveyance lines L1 through L8 of B5 will be constructed 11,700 feet in length and have lines ranging from 18 inches to 102 inches. Cost for this portion of the storm drain is estimated to be $4.4 million, | | |
| South Coast | Riverside | Alessandro Dam Outlet Modification | $ 338,000 | This project will reconstruct and restore the Alessandro Dam outlet structure to prevent blockage from sediment accumulation and improve the seismic stability of the dam, in accordance with State Division of Safety of Dams guidelines. | | |
| South Coast | Riverside | Arroyo Del Toro Channel | $ 7,306,450 | The project provides for channel improvements along Arroyo Del Toro Channel from Elsinore Outlet Channel downstream of State Highway 74 to approximately 3,800 feet to I-15 in the northwest direction. | | |
| South Coast | Riverside | Bedford Wash and Temescal Wash Flood Protection Corridor Project | $ 6,435,000 | The proposed project, in conjunction with surrounding projects, which includes the Dos Lagos Redevelopment Area, represents a model mixed land use approach designed to reclaim a 600-acre area damaged by more than 70 years of silica mining extraction and processing, and general manufacturing activity. The restoration of Bedford Wash and Temescal Wash, in combination with the balanced and sustainable approach to the redevelopment of the larger and surrounding area, makes this a unique and important project. The remediation, restoration, and preservation of Bedford and Temescal Washes will integrate with surrounding development and ongoing land use planning efforts such as the preservation of 135 acres of open space, linking the 13,000-acre Lake Mathews-Estelle Reserve with restoration activities to Temescal Wash. | Yes | Ecosystem |
| South Coast | Riverside | Box Springs Dam Outlet Modification | $ 338,000 | This project will reconstruct and restore the outlet structure to prevent blockage from sediment accumulation and to improve the seismic stability of Box Springs Dam in accordance with State Division of Safety of Dams guidelines. | | |
| South Coast | Riverside | Calimesa - Avenue L Storm Drain | $ 4,640,240 | This project provides storm drain improvements in the City of Calimesa from an existing culvert under I-10 near County Line Road east to Calimesa Boulevard then south in Calimesa Boulevard to Avenue L and east in Avenue L approximately 2,500 feet. | | |
| South Coast | Riverside | Corona - East Grand Boulevard Storm Drain | $ 686,600 | This is a design-build project for a new underground storm drain in Grand Boulevard from 91 Freeway upstream to 7th Street in the City of Corona. | | |
| South Coast | Riverside | Corona - South Joy Street Storm Drain | $ 782,000 | This project provides for construction of an underground storm drain in Joy Street extending from Sixth Street to Second Street in the City of Corona. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | Riverside | Corona - South Victoria Avenue Storm Drain | $ 664,000 | This project provides for construction of a new underground storm drain along South Victoria Avenue from East Seventh Street to East Second Street in the City of Corona. | | |
| South Coast | Riverside | Corona Drain Line 9a | $ 1,150,000 | The project provides an extension of an existing storm drain in Magnolia Avenue from Mt. Wilson upstream to Kellogg Avenue in the City of Corona. | | |
| South Coast | Riverside | Corona Drain, Line 1-G | $ 424,450 | This project provides for completion of a storm drain project previously abandoned by a contractor. | | |
| South Coast | Riverside | Corona Drains - Main Street Storm Drain | $ 763,710 | This is a design-build project for a new underground storm drain along Main Street between Eighth Street and Tenth Street in the City of Corona. | | |
| South Coast | Riverside | Corona Master Drainage Plan (MDP) Line 5 | $ 937,000 | The project provides storm drain improvements in the City of Corona along Railroad Street between Oak Street Channel and Shale. | | |
| South Coast | Riverside | Corona Master Drainage Plan Line 52 | $ 2,901,100 | This is a design-build project for a new underground storm drain extending from E. Grand Boulevard/91 Freeway, running along Pearl Street and Burlington Northern and Santa Fe (BN&SF) Railroad right-of-way to the Temescal Creek Channel in the City of Corona. | | |
| South Coast | Riverside | Day Creek Line J | $ 2,649,320 | This is an extension of the Zone 1 project located entirely in Zone 2, which is developer-driven, to complete the last link in the Day Creek Master Drainage Plan (MDP) line. Alignment, type, and total cost of facility will likely differ from the MDP concept. | | |
| South Coast | Riverside | Eastvale Master Drainage Plan Line E-1 | $ 3,781,000 | This project provides for storm drain improvements along Bellegrave Avenue from County Line Channel at Hamner Avenue east approximately 1,000 feet, then north approximately 5,400 feet to the existing Line E Detention Basin. A portion of this line has been designed by Lewis Operating Group for Parcel Map 31645, but the developer project is on hold. | | |
| South Coast | Riverside | El Cerrito Channel | $ 2,985,580 | | | |
| South Coast | Riverside | El Cerrito Channel Restoration | $ 1,000,000 | This project provides for replacement of 2,400 feet of the existing channel along Temescal Canyon Road northeast adjacent to Minnesota Road. A detailed cost estimate has not yet been prepared. | | |
| South Coast | Riverside | Green Acres Dam and Outlet | $ 2,008,000 | This project consists of Feasibility Study to construct a retention basin and associated outlet structure near Cortrite Avenue and Los Limones Lane. The project concept is 20 years old. | | |
| South Coast | Riverside | Harrison Dam Outlet Modification | $ 338,000 | This project will reconstruct and restore an outlet structure to prevent blockage from sediment accumulation and improve the seismic stability of the Harrison Dam in accordance with State Division of Safety of Dams guidelines. | | |
| South Coast | Riverside | Heacock Channel-Sunnymead Line B | $ 4,007,820 | This project provides for storm drain improvements along Heacock Street from Perris Valley Channel Lateral A north to Cactus Avenue. The project is no longer a USACE project and will be re-scoped as a locally funded project to minimize private property funding east of Heacock Street. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | Riverside | Hemet Master Drainage Plan Line C Stage 4 | $ 4,033,440 | This project provides for an underground storm drain in Whittier Boulevard, extending from the existing storm drain at Palm Avenue east to San Jacinto Street. Originally planned to extend only to Santa Fe Street the project limits have been extended at the request of the City of Hemet. | | |
| South Coast | Riverside | Homeland Master Drainage Plan Line 2 Stage 2 | $ 675,840 | The project consists of a drainage master plan for the study area between the existing Wakefield basin and Agnew Avenue. | | |
| South Coast | Riverside | Lake Mathews Watershed Master Water Quality Improvement Project Phase II | $ 8,000,000 | The Drinking Water Quality Master Plan (DWQMP) was completed in the early 1990s through an active partnership between Metropolitan Water District of Southern California, Riverside County FCWCD, and the County of Riverside. The DWQMP investigated the effects that development may have on lake water quality and recommended steps to reduce non-point source pollution into Lake Mathews. The Cajalco Creek Dam and Detention Basin were constructed as Phase I of that plan. The project partners are updating the watershed study based on updated development projections, changing regulatory environment, and state-of-the-art stormwater treatment options. Phase II of the project will implement the updated recommendations and consist of infiltration basins, extended detention basins, constructed wetlands, and/or other BMPs located strategically along Cajalco Creek and other watershed tributary drainages. The Phase II project components will coordinate with site-specific BMPs to be implemented by new development in the watershed. | Yes | Water Quality |
| South Coast | Riverside | Lakeland Village - Adelfa Channel | $ 3,193,290 | This project provides for storm drain improvements from Lake Elsinore southwest in Maiden Lane to Cottrell Boulevard, then west in Cottrell to a sump west of Adelfa Street and from Maiden Lane at Cottrell south in Landerville Boulevard to Anthony Avenue and west in Anthony to sump. | | |
| South Coast | Riverside | Lakeland Village - Orange Street Lateral | $ 455,160 | The project consists of improvements of a small lateral to Lime Street Channel, 700 linear feet in length, from the existing Lime Street Channel west along Fairview Street and south along Orange Street. | | |
| South Coast | Riverside | Lakeland Village Master Drainage Plan | $ — | The MDP will depict a proposed stormwater drainage system that, when constructed in conjunction with the ultimate street improvements will provide protection against the 100-year flood discharge and alleviate the primary sources of flooding within the MDP area. The plan will include an estimate of facility capacity, sizes and costs. The MDP will serve as a guide for the long-term planning and future construction of the proposed drainage facilities. The plan will provide the approximate location and size of drainage facilities that need to be constructed by the District and/or others private interests to resolve existing flooding problems within areas already developed. Alternatives include a combination of water quality basins, debris basins, main line drainage facilities with laterals, and floodplain buy-outs. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | Riverside | Lakeview Master Drainage Plan Lateral D-1 | $ 181,000 | This project provides storm drain improvements from Yucca Street easterly in 11th Street, Bell Avenue and Brown Avenue to Lakeview Dam Outlet. | | |
| South Coast | Riverside | Lakeview/Nuevo Master Drainage Plan Line K | $ 3,324,000 | This project provides storm drain improvements from an outlet west of Reservoir Avenue easterly in Apricot Avenue to Banner Street. | | |
| South Coast | Riverside | Leach Canyon Dam Outlet Structure Modification | $ 276,000 | This project will reconstruct the outlet structure to prevent blockage from sediment accumulation in Leach Canyon Dam. | | |
| South Coast | Riverside | Little Lake Master Drainage Plan, Line B | $ 7,735,080 | This project provides for construction of an underground storm drain from just north of Berkeley Avenue, south in Meridian Street to Whittier Avenue. | | |
| South Coast | Riverside | Little Lake Master Drainage Plan, Line B Stage 2 | $ 6,072,400 | This project is an underground storm drain extending from an existing storm drain in Meridian Street near Berkeley Avenue, south in Meridian Street to Whittier Avenue. The preliminary alignment and pipe sizes for the Line B Storm Drain were established as part of an overall revision to the Little Lake Master Drainage Plan. | | |
| South Coast | Riverside | Mary Street Dam Outlet Modification | $ 338,000 | This project will reconstruct and restore an outlet structure to prevent blockage from sediment accumulation and to improve the seismic stability of Mary Street Dam in accordance with State Division of Safety of Dams guidelines. | | |
| South Coast | Riverside | Master Drainage Plan Enhancement and Implementation in Riverside County | $ 205,000,000 | This project proposes updates to the District's MDPs to reflect current environmental constraints. An update will result in plans that make environmental benefits a priority, identify retrofit opportunities, and utilize regional opportunities for environmental mitigation (for TMDLs, municipal separate storm sewer system [MS4] permit compliance). This project would construct un-built MDP facilities and retrofit existing flood control facilities in the Anza, Murrieta, and Wildomar Master Plans. | Yes | Ecosystem |
| South Coast | Riverside | Mead Valley Master Drainage Plan Line A | $ 3,012,940 | This project provides storm drain improvements from Alexander Street east to the vicinity of Brown Avenue, including Lateral A-2. | | |
| South Coast | Riverside | Mira Loma-Beach Street Storm Drain | $ 4,534,100 | The project consists of storm drain improvements for the proposed outlet just south of 58th Street proceeding north through private property and then Beach Street to just north of 55th Street where it again splits property lines to 54th Street, then both east to a sump pump in Cedar Street and west to a sump pump in Rutile Street. | | |
| South Coast | Riverside | Mockingbird Canyon | $ 1,032,320 | The project provides for acquisition of residences in the floodway from volunteer sellers. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | Riverside | Mockingbird Canyon Restoration | $ 4,250,690 | This project addresses Mockingbird Canyon restoration alternatives. The best long-term solution appears to be the restoration and streambank stabilization of Mockingbird Canyon Wash. Rather than collecting the debris from these areas every year, this approach focuses on improving reaches of the wash so that they become stable and vegetated over time, hence, transporting less sediment. A field investigation showed that some reaches of the wash are healthy, with good habitat, and with only a few invasive plants. However, some portions of the wash have no vegetation and erode quite heavily. Typically, this erosion occurs downstream of private driveway culverts and road crossings. To address this issue, it would be best to work toward restoring the natural wash, which would involve studying the wash as a whole, acquiring right-of-way, and stabilizing the wash over time. | Yes | Ecosystem |
| South Coast | Riverside | Monroe Master Drainage Plan - Monroe Channel (Stage 4) | $ 5,033,200 | | | |
| South Coast | Riverside | Monroe Master Drainage Plan - Monroe Channel (Stage 5) | $ 8,103,900 | | | |
| South Coast | Riverside | Montgomery Street Channel | $ 24,160 | This project is for construction inspection only. The City of Banning intends to complete the developer-abandoned project using performance bonds. | | |
| South Coast | Riverside | Moreno Master Drainage Plan Line K | $ 6,548,710 | This project is for storm drain improvements from the existing Nason Basin northeasterly approximately 2,500 feet to Ironwood Avenue. The cost estimate in the CIP is based on an engineered channel. Preliminary engineering work on an alternative analysis has revealed that soft-bottomed channel costs are in excess of the floodplain value. More investigation is required before the project scope can be determined. | | |
| South Coast | Riverside | Moreno Master Drainage Plan Line K - 1 Stage 3 | $ 1,796,000 | This project includes storm drain improvements from Stage 1 at Ironwood Avenue north in Moreno Beach Drive to Locust Avenue. | | |
| South Coast | Riverside | Moreno Master Drainage Plan Line K-1 (to Petite Street) | $ 104,130 | This project includes storm drain improvements along Petit Street from Line K east in Ironwood Avenue to Petit. | | |
| South Coast | Riverside | Moreno Master Drainage Plan Sinclair Basin | $ 8,675,500 | This project includes storm drain improvements north of the Moreno Valley Freeway (60 Freeway) near Sinclair Street. | | |
| South Coast | Riverside | Murrieta Creek Master Drainage Plan Line A | $ 426,000 | This project includes storm drain improvements from Del Rio Road to Front Street, not including the upgrade of these two undersized street crossings. | | |
| South Coast | Riverside | Murrieta Creek Master Drainage Plan, Line D | $ 1,024,500 | This project includes a potential contribution to the City of Murrieta for construction of the downstream end of the MDP line in conjunction with Guava Avenue Bridge project. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | Riverside | Norco Master Drainage Plan Line N-1 | $ 912,710 | This project provides for storm drain improvements from the Norco MDP Line N-1 in 7th Street near Pedley Avenue east to California Avenue, south approximately 800 feet to the sump. | | |
| South Coast | Riverside | Norco Master Drainage Plan Line Na-3 | $ 608,010 | This project provides for storm drain improvements for the Norco MDP Line NA in Sixth Street, south approximately 1,300 feet in Pedley Avenue. | | |
| South Coast | Riverside | Norco Master Drainage Plan Line Nb | $ 934,000 | This project provides storm drain improvements from an existing outlet at I-15 near Fortuna Avenue east approximately 1,800 feet to Valley View Street. | | |
| South Coast | Riverside | Norco Master Drainage Plan Line Nb-3 | $ 31,960 | This project provides storm drain improvements from the outlet at Line NB south approximately 800 feet to Fourth Street, then east in Fourth Street approximately 800 feet. | | |
| South Coast | Riverside | Norco Master Drainage Plan Line S-1 | $ 1,588,600 | This project provides storm drain improvements from the outlet at South Norco Channel east in Third Street approximately 2,400 feet. | | |
| South Coast | Riverside | Norco Master Drainage Plan Line S-2 | $ 913,000 | This project provides storm drain improvements from outlet at South Norco Channel east in Second Street approximately 1,800 feet. | | |
| South Coast | Riverside | Norco Master Drainage Plan Line S-5 | $ 1,708,000 | This project provides storm drain improvements from South Norco Channel east in Hillside Lane to Hillside Avenue. | | |
| South Coast | Riverside | North Main Street Channel | $ 2,431,000 | This project provides storm drain improvements from the outlet to Corona Drains Line 1 at Cota Street west approximately 900 feet to Oak Street Channel. | | |
| South Coast | Riverside | North Norco Channel and Lateral N1d & Norco Spirit Ct Sd | $ 1,560,750 | This project provides for an underground system to alleviate the flooding along Rose Court, Temescal Avenue, and Spirit Knoll Court. The project consists of two laterals—Spirit Knoll Court lateral and Line N-1D lateral—both connecting to the existing North Norco Channel. | | |
| South Coast | Riverside | North Norco Channel and Laterals Nc, Nc-1, and N-2 | $ 8,659,740 | | | |
| South Coast | Riverside | North Norco Channel Line Na Stage 2 Restoration | $ 265,690 | This project provides storm drain improvements from Norco MDP Line NA in Sixth Street, south approximately 1,300 feet in Pedley Avenue. | | |
| South Coast | Riverside | North Norco Channel Stage 10 | $ 2,242,890 | This project is the local flood district's contribution to a joint project with the City of Norco and local developers for the upgrade of the existing channel between Parkridge Avenue and River Road. This project is not yet fully defined. | | |
| South Coast | Riverside | Nuevo - Vista Road Storm Drain | $ 1,000,000 | This project provides for construction of an underground storm drain in Vista Road extending from an outlet near the San Jacinto River north to Antelope Road and then generally north to Menifee Road. | | |
| South Coast | Riverside | Ortega Channel Debris Basin | $ 500,000 | This project provides for construction of a debris basin east of Ortega Highway and south of Grand Avenue. | | |
| South Coast | Riverside | Perris Valley Channel | $ 294,000 | This project is in the CIP to track Perris Valley Area Drainage Plan (ADP) funds. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | Riverside | Perris Valley Master Drainage Plan Line B-7 | $ 989,000 | This project provides for construction of an underground storm drain extending from an outlet under I-215 near Nandina Avenue east to existing Line B. | | |
| South Coast | Riverside | Phases 2-4 of the Homeland/Romoland Line A Master Drainage Plan | $ 16,181,233 | This project is for storm drain improvements to:<br>1) Provide protection from historical flooding and remove impacted properties from the 100-year floodplain<br>2) Improve water quality by reducing top soil erosion and pollutants and by implementing water quality BMPs<br>3) Construct drainage basins and remove 500,000 tons of silt and debris that currently flow to the San Jacinto River, thereby assuring higher quality water supply to both Canyon Lake and Lake Elsinore<br>4) Provide flood control protection for Heritage High School, the fire station, existing Edison substation, businesses and homes<br>5) Recharge the local groundwater basin and create an infiltration area for recharge during low-level storm events<br>6) Create community parks, trails, and recreation facilities with drought-resistant landscaping for use by local residents<br>7) Facilitate new development and provide permanent jobs in an existing community that has high unemployment rates | Yes | Water Quality |
| South Coast | Riverside | Prenda Dam Outlet Modification | $ 338,000 | This project will reconstruct and restore the outlet structure to prevent blockage from sediment accumulation and improve the seismic stability of Prenda Dam in accordance with State Division of Safety of Dams guidelines. | | |
| South Coast | Riverside | Pyrite Channel Bypass | $ 1,280,460 | This is a cooperative project with County Economic Development Agency. The project involves construction of a channel bypass from Jurupa Channel east to Pyrite Street, north to the existing channel. The project will not bypass the entire Q100, but it will provide substantial relief to properties between Pyrite Street and Jurupa Avenue. | | |
| South Coast | Riverside | Romoland Master Drainage Plan, Line A | $ 5,375,300 | The drainage facility has been completely realigned and redesigned to account for basin additions in the Homeland area that have decreased the flow rate. Line A will be proposed as an earthen open channel west of the freeway. The portion of the line upstream of I-215 is a combination of concrete-lined open channel, reinforced-concrete box, and reinforced concrete. | | |
| South Coast | Riverside | San Jacinto Master Drainage Plan Line C, C-4, and C-5 | $ 5,969,860 | This project consists of storm drain improvements from Esplanade Avenue south to Midway Street then along Midway Street to San Jacinto Street, including Lateral B south in San Jacinto Street to Menlo Avenue and Lateral C-5 east to Santa Fe Street. | | |
| South Coast | Riverside | San Jacinto River | $ 11,287,200 | This project, a joint venture with the City of San Jacinto, was conceived as a multi-year plan to construct the ultimate levee system (approximately 1,200 feet wide at river bottom) between the existing USACE levee 9,500 feet upstream of State Street, and a point about 8,200 feet downstream of Sanderson Avenue. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | Riverside | San Jacinto River Gap Project | $ 40,000,000 | The project consists of a soft-bottomed channel with levees from Sanderson Avenue to a point about 10,000 feet west and then northwest about 6,000 feet to Bridge Street. The channel will have capacity for about a 25-year storm event (31,000 cfs). There will be grade-control structures in the channel. Enhanced habitat values will be provided along the channel alignment, so it can be used as a corridor to connect the San Jacinto Wildlife Area (SJWA) between the Portrero and Davis Units of the SJWA. This project would:<br>• Prevent flows up to the 25-year storm from spreading across agricultural land and thereby reduce nutrient loading to storm runoff<br>• Make an important contribution toward the delisting of Canyon Lake and Lake Elsinore as impaired bodies of water<br>• Provide critical habitat corridor linkage for the Portrero and Davis Units of the SJWA (the SJWA is the No. 1 priority habitat area in Riverside County for the Multi-Species Habitat Conservation Plan)<br>• Provide managed habitat for the Los Angeles pocket mouse and San Bernardino kangaroo rat<br>• Respect water rights in the region | Yes | Ecosystem |
| South Coast | Riverside | San Jacinto River Levee Repair Downstream State Street | $ 108,070 | The project will reconstruct a segment of a damaged levee adjacent to Golden Era between State Street and Sanderson Avenue. | | |
| South Coast | Riverside | Santa Ana River Stabilization | $ 265,630 | This project provides for stabilization of a portion of the Santa Ana River to improve the integrity of the channel. | | |
| South Coast | Riverside | Santa Margarita Region Retrofit Opportunities Study and Program Framework | $ 70,495 | This project consists of a study to identify and prioritize existing areas of development that have the potential to cause water quality impairments as a result of urbanization, as well as the development of a program framework to be used to further refine prioritizations based on water quality data analysis. The study would develop a retrofit program that can be implemented through the Upper Santa Margarita Watershed IRWM Region to holistically address water quality issues associated with urban development. This study would support the project, Water Quality Enhancements in Riverside County, to reduce impacts from hydromodification, promote LID, support riparian and aquatic habitat restoration, reduce the discharges of stormwater pollutants, and improve water quality. A focus for candidates will include areas where receiving waters are channelized, hardened, and/or eroded. It also includes the development tributary to these receiving waters, as well as developed areas generating pollutants to environmentally sensitive areas. The retrofit program framework will become part of the City's and County's ongoing stormwater management programs and will serve as guidance for these agencies to effectively implement retrofit projects. The framework will include a menu of project types and establish incentives and partnership programs. The framework also will include a tracking mechanism for completed projects and guidance for ongoing evaluation for additional retrofit program candidates. | Yes | Water Quality |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | Riverside | South Norco Channel | $ 3,800,000 | This project provides channel improvements from the confluence with South Norco Line SB northeast approximately 2,500 feet to Hamner Avenue. | | |
| South Coast | Riverside | Southeast Flood Control and Water Conservation Demonstration Gardens | $ 1,800,000 | This project will put into place a flood control system that will protect infrastructure and capture stormwater. The captured stormwater will be used to supply an adjacent native plant and water conservation demonstration garden facility. Approximately 250 residents are periodically isolated by roadway inundation of Terwilliger and Rim Rock Canyon Roads in southeast Anza. Inundation often lasts 1 week, preventing access of emergency, and school transport vehicles to the area. Smaller samples of sustainable landscaping will be implemented at public places along Highway 371 and two community facilities. | | |
| South Coast | Riverside | Southwest Riverside Master Drainage Plan, Line G, G-1, and F-1 | $ 2,915,610 | This project consists of storm drain improvements from Lincoln Avenue south to Victoria Avenue in Meyers Street and includes Lateral G-1 to Van Buren Boulevard and Lateral F-1 to Harrison Street. | | |
| South Coast | Riverside | Storm Water Capture and Groundwater Recharge in the Perris North Groundwater Management Zone | $ 200,000 | The program includes evaluation of stormwater capture and groundwater recharge potential in the Perris North Groundwater Management Zone. The evaluation will focus on existing and potential future stormwater retention basins and unlined portions of existing surface drains. Existing retention basins include Poorman Reservoir, Nason, and Lasselle. Existing surface drains include the Heacock, Oleander, and Perris drains and their tributaries. The program evaluation will include:<br>• Analysis of historical and projected future stormwater runoff<br>• Analysis of historical recharge from surface runoff<br>• Analysis of the percolation potential of surface soils along drains and at retention basins<br>• Percolation testing at up to five sites<br>• Exploratory drilling at up to three sites to evaluate deep percolation potential<br>• Identification of new facilities and requirements for O&M, and monitoring to facilitate stormwater retention and recharge | | |
| South Coast | Riverside | Sunnymead Master Drainage Plan Line B-11 | $ 184,561 | This project provides reimbursement to the City of Moreno Valley for construction of ADP-eligible Master Drainage Plan storm drain. $184,561 from Sunnymead ADP funds. | | |
| South Coast | Riverside | Sunnymead Master Drainage Plan Line G-1 | $ 477,000 | This project consists of storm drain improvements from existing Line G-1, Stage 1 at Sunnymead Boulevard north approximately 1,500 feet to I-60. | | |
| South Coast | Riverside | Sunnymead Master Drainage Plan Line M-16 | $ 692,000 | This project consists of storm drain improvements from existing Kitching Street Channel at Alessandro Boulevard east approximately 1,300 feet in Alessandro Boulevard to its terminus. | | |
| South Coast | Riverside | Sunnymead Master Drainage Plan Line P-6 | $ 822,240 | This project consists of storm drain improvements from Perris Boulevard to Shirebourn Road in Eucalyptus Avenue. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | Riverside | Sycamore Dam Outlet Modification | $ 387,770 | This project will reconstruct the outlet structure to prevent blockage by debris accumulation. This is a pilot project to develop a solution for the local flood district's six other Riverside Reservoirs. | | |
| South Coast | Riverside | Temecula Pechanga Creek Restoration | $ 580,000 | This project will reconstruct storm-damaged concrete slope protection. | | |
| South Coast | Riverside | Temescal Creek Floodplain Acquisition | $ 10,089,280 | This project provides for acquisition of floodplain area for flood protection, water conservation, and habitat mitigation banking. The scope of the acquisition is not fully defined. | Yes | Ecosystem |
| South Coast | Riverside | Temescal Creek-Foster Road Storm Drain | $ 2,725,640 | This project consists of an underground storm drain in Foster Road from I-15 to Temescal Creek, including environmental enhancement adjacent to Temescal Creek. | | |
| South Coast | Riverside | Tucalota Creek | $ 160,000 | This project consists of channel improvements at the Sage Road (SR 3) crossing of Tucalota Creek. | | |
| South Coast | Riverside | University Area Master Drainage Plan Line 13 | $ 95,000 | This project consists of storm drain improvements of 1,700 feet of underground storm drain paralleling railroad right-of-way from approximately 700 feet southwest of Kansas Avenue to University Wash. | | |
| South Coast | Riverside | University Channel | $ 1,347,880 | This project consists of storm drain improvements from Spruce Street southeast to the existing storm drain 200 feet north of Massachusetts Avenue and 660 feet west of Durahart Street. | | |
| South Coast | Riverside | Valle Vista-Bethlam Avenue Storm Drain Stage 2 | $ 1,883,000 | This project provides for storm drain improvements for 800 linear feet of collector levee and 1,400 linear feet of 90-inch RCP, extending from the intersection of Olive and Fairview upstream to Palm Avenue, to protect a proposed school site. | | |
| South Coast | Riverside | Valle Vista-Valle Vista Channel Extension | $ 734,700 | This project includes the extension of 650 linear feet of rectangular channel and inlet works along the south side of Acacia Avenue west of Georgia Avenue. | | |
| South Coast | Riverside | Warm Springs Channel | $ 1,423,080 | This project consists of channel improvements from Madison Avenue west approximately 500 feet to the existing Stage 2 channel near Jefferson Avenue. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | Riverside | Water Quality Enhancements in Riverside County | $ 36,500,000 | The project aims to reduce impacts from hydromodification, promote LID, support riparian and aquatic habitat restoration, and reduce the discharges of stormwater pollutants and improve water quality. The project builds on the Santa Margarita Region Retrofit Opportunities Study and Program Framework, which involves identification of retrofit opportunities in the Santa Margarita Watershed. The project includes researching, inventorying and prioritizing areas of existing development (e.g., municipal, industrial, commercial, residential) as candidates for targeted retrofit projects that would reduce the impacts of existing development on the watershed. Specific outreach will occur through the education of homeowners associations, which will serve to identify the need and benefits to retrofit existing common landscaped areas. The project also involves hydromodification management, which will guide and support the planning, design, and construction of priority new and significant redevelopment projects (planned development projects) within the Upper Santa Margarita Watershed to manage increases in runoff discharge rates and durations. | Yes | Ecosystem |
| South Coast | Riverside | West Elsinore Master Drainage Plan, Line A | $ 183,630 | This project provides for construction of a channel/line that is part of the West Elsinore Master Drainage Plan. | | |
| South Coast | Riverside | West End Moreno Master Drainage Plan - Line Ll | $ 1,463,330 | This project consists of construction of an underground storm drain from Dracaea Avenue approximately 500 feet west of Edgemont Street, then south 750 feet and southwest approximately 1,200 feet to I-215. | | |
| South Coast | Riverside | Wildomar Master Drainage Plan Lateral C-1 (Billie Ann Road Storm Drain) | $ 1,918,000 | This project combines Billie Ann Road Storm Drain and Wildomar MDP Lateral C-1. Construction includes a 66-inch RCP in Charles Street from 500 feet north of Refa Street and an 84-inch RCP from 500 feet south of Refa Street, traveling downstream in Refa Street to the existing reinforced-concrete box at Palomar Avenue. | | |
| South Coast | Riverside | Wildomar Master Drainage Plan Lateral C | $ 7,500,000 | This project consists of storm drain improvements from the existing improved channel near Pasadena Street upstream to Central Street. | | |
| South Coast | Riverside | Woodcrest Dam Outlet Modification | $ 338,000 | This project will reconstruct and restore the outlet structure to prevent blockage from sediment accumulation and will improve seismic stability of Woodcrest Dam in accordance with State Division of Safety of Dams guidelines. | | |
| South Coast | San Bernardino | 14th Street Storm Water Collection and Integration Project - Upland | $ 5,000,000 | The project will provide flood protection by capturing and conveying storm flows to Upland Basin. The additional benefits such as water quality and groundwater recharge through the construction of a detention or retention basin will allow recharge of storm flows into multiple aquifer basins and the decrease of pollutants and silt transportation into downstream sensitive habitat such as Santa Ana River and Prado Dam. In addition, the proposed project will be capable of mitigating flood damage and loss of life from a potential catastrophic failure of the San Antonio Dam. | Yes | Water Supply |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | San Bernardino | Antelope Valley Wash Recharge Ponds | $ 800,000 | Antelope Valley Wash Recharge Ponds could provide groundwater recharge upgradient from City of Hesperia wells. The Hesperia Master Plan of Drainage identifies a 65-acre site for a stormwater detention basin in the Antelope Valley Wash south of Ranchero Road. In addition to stormwater detention, the site might be able to accommodate groundwater recharge. The Morongo Basin Pipeline passes by this area and would be the source of recharge water. | Yes | Water Supply |
| South Coast | San Bernardino | Cable Creek Basin and Spreading Grounds | $ 1,000,000 | The proposed basin will be located at the Cable Creek Spreading Grounds and will serve as a sedimentation basin and flood storage/detention basin. The basin will reduce the peak discharge from Cable Creek at its confluence with Devil Creek Diversion Channel. The total basin volume is proposed to be 993 acre-feet. | | |
| South Coast | San Bernardino | Cactus Basins No. 4 and No. 5 | $ 21,600,000 | As part of the proposed I-210 freeway construction project, Caltrans reconstructed Cactus Channel, which intercepts flows to the north of the proposed freeway and discharges into the Cactus Basins, south of the freeway. As a result of the new construction, additional flows will be collected in Cactus Channel and discharged into the Cactus Basins. Cactus Basins, therefore, will need to be enlarged to mitigate the increased flow. The Cactus Basin improvements will consist of a series of detention basins upstream of Baseline Road. | | |
| South Coast | San Bernardino | Cactus Basins No. 3 and No. 3A | $ 10,000,000 | As part of the proposed I-210 freeway construction project, Caltrans reconstructed Cactus Channel, which intercepts flows to the north of the proposed freeway and discharges into the Cactus Basins, south of the freeway. As a result of the new construction, additional flows will be collected in Cactus Channel and discharged into the Cactus Basins. Cactus Basins, therefore, will need to be enlarged to mitigate the increased flow. The Cactus Basin improvements will consist of three in-series detention basins upstream of Baseline Road. The first phase of construction will consist of improvements to Basins 3 and 3A. Surface water in the area will flow southward from the existing Cactus Channel into Basin No. 3 and from Basin No. 3 into Basin No. 3A. Surface water will then flow from Basin No. 3A through an existing reinforced-concrete box and pipe structure (located in the southwest corner of Basin No. 3A) under Baseline Road into the existing Rialto Channel and Basins 1 and 2. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | San Bernardino | Chino Creek Multipurpose Corridor | $ 13,900,000 | This project includes creation of a multipurpose green corridor along Chino Creek, including reconfiguring the channel cross section and creating floodplain terraces that will allow flood flows to dissipate energy and decrease velocities. Grade control structures will stop channel bed erosion. Bioengineering methods will be used to stabilize the bank. The project will revegetate and create 51 acres of new native vegetation, as well as create 3.2 miles of trails and 2.1 miles of riparian corridor. Sub-project areas include:<br>• Channel restoration/grade control near Central Avenue Bridge<br>• Bank stabilization near Kimball Avenue<br>• Storm drainage confluence improvement near Chino Creek Park<br>• Floodplain park near Magnolia Channel confluence and Chino Hills soccer complex<br>• Stream restoration through El Prado Golf Course. | Yes | Ecosystem |
| South Coast | San Bernardino | Comprehensive Storm Drain Plan 3-5/3-8 | $ 20,000,000 | The local flood district is coordinating with the City of Colton on funding for the construction of the Comprehensive Storm Drain Plan flood protection project. This system protects residences, commercial properties, and major transportation corridors, including main routes to the regional hospital. | | |
| South Coast | San Bernardino | Cushenbury Flood Detention Basin | $ 2,000,000 | The project is proposed to capture runoff from the San Bernardino Mountains in the Lucerne Valley Sub-basin. Currently, large storm flows in the area drain to dry lakebeds that have low percolation rates. Consequently, the majority of water that drains to the lakebeds is lost to evaporation and never enters the basin. The project would divert storm flows to detention basins with higher rates of percolation to decrease losses from evaporation. | Yes | Water Supply |
| South Coast | San Bernardino | Del Rosa Channel Improvement and Repair | $ 6,955,644 | The project is to improve the existing channel between Highland Avenue and Date Street in San Bernardino. The current channel is an interim facility with inadequate capacity and is experiencing failures. | | |
| South Coast | San Bernardino | Drainage A Detention Basin | $ 5,200,000 | Drainage A is a vegetated swale that transitions to a bedded channel downstream of Pine Avenue before the channel connects to Prado Lake in the city of Chino. The proposed project would be located in an open field immediately north of Pine Avenue, east of Euclid Avenue, south of Bickmore Avenue, and west of Sultana Avenue. | | |
| South Coast | San Bernardino | Elder Creek Channel | $ 2,000,000 | This is for the construction of the Elder Creek flood protection project. The project emphasizes the national goals of the Environmental Protection Agency to plan the development and use of land through preservation and enhancement of rivers, tributaries, and streams, as well as the land drained thereby. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | San Bernardino | Enhanced Stormwater Capture and Recharge along the Santa Ana River Phase I | $ 8,000,000 | The project for Enhanced Stormwater Capture and Recharge along the Santa Ana River consists of enhancing the Cuttle weir diversion structure, improvements to the existing San Bernardino Valley Water Conservation District Canal, construction of Valley District's Plunge Pool Pipeline Phase I, construction of pretreatment facilities, improvements to the existing spreading grounds and construction of new spreading grounds. The project will achieve:<br>1) Increased utilization of stormwater as a water supply<br>2) Increased storage of imported water during wet years for use during droughts<br>3) Increased water supply reliability<br>4) Improved water quality<br>The design objectives for these facilities are 80,000 acre-feet in a single year at a maximum instantaneous flow rate of 500 cfs. | Yes | Water Supply |
| South Coast | San Bernardino | Enhanced Stormwater Capture and Recharge along the Santa Ana River Phase II | $ 22,000,000 | This portion of the project for Enhanced Stormwater Capture along the Santa Ana River involves the construction of the Plunge Pool Pipeline Phase II. This section of pipeline would be approximately 2 miles long and 8 feet in diameter. The completion of Phase II would enable Valley District/western to convey up to 500 cfs from the Santa Ana River to the Metropolitan Water District of Southern California Inland Feeder for delivery to Western Municipal Water District and Riverside. This project will provide an average additional yield of 2,700 acre-feet a year (104,000 acre-feet over 39 years). | Yes | Water Supply |
| South Coast | San Bernardino | Etiwanda/San Sevaine Basins 1 through 4 | $ 4,000,000 | The proposed debris and sedimentation basins will capture runoff from the mountains and foothills north of the City of Rancho Cucamonga, namely from the East Etiwanda Creek and San Sevaine Creek. The proposed study will be performed such that Basins 1 through 4 may be designed and constructed to be permanent flood control facilities and perform in concert with the recently improved Etiwanda Basin 5 to provide 100-year flood protection. Also to be considered for the calculation of ultimate basin capacities will be burn events. Even though the primary function of the basins will, in fact, be to provide increased flood protection, the basins will also provide a reliable water supply, preserve and enhance the environment, ensure high-quality water, use rainfall as a resource, and maintain quality of life. | Yes | Water Supply |
| South Coast | San Bernardino | Francis Street Storm Drain | $ 9,000,000 | Francis Street storm drain is an interim regional storm drain operated and maintained by the local flood district. The City of Ontario has identified a need to construct ultimate improvements to this facility. The City will be the lead agency, prepare construction documents and administrate construction. District cost share is 75% of the total project cost. | | |
| South Coast | San Bernardino | Inland Empire Utility Agency Basin Recharge Project | $ 38,000,000 | Inland Empire Utilities Agency is the lead agency for a proposal to use 19 existing basins within the Chino Basin to recharge stormwater and imported water. | Yes | Water Supply |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | San Bernardino | Lytle Cajon Basin | $ 1,000,000 | The debris and sedimentation basin currently captures runoff from the mountains and foothills north of the City of San Bernardino, namely from Lytle Creek. The purpose of this proposed study is to determine the characteristics and extent of the drainage area as sediments are washed toward the basin's downstream gatehouse. An additional purpose of the study is to explore methods of operation or construction concepts that would more fully utilize the East Branch Lytle Creek Channel because, by design, it could certainly take more frequent flows and relieve the pressure from Lytle-Cajon Channel. For the past several years, the invert of Lytle-Cajon Channel has received all of the debris from the watershed drainage areas as it travels down this channel to its confluence with Warm Creek. This debris received by the Lytle-Cajon Channel has caused severe erosion and damage to the channel invert, with many areas exposed to the second layer of reinforcement bar. Even though the primary function of the basin will be to provide increased flood protection, it will also provide a reliable water supply, preserve and enhance the environment, ensure high-quality water, use rainfall as a resource, and maintain quality of life. | Yes | Water Supply |
| South Coast | San Bernardino | Lytle-Cajon Channel Repair | $ 5,000,000 | The debris and sedimentation basin currently captures runoff from the mountains and foothills north of the City of San Bernardino, namely from Lytle Creek. The purpose of this proposed study is to determine the characteristics and extent of the drainage area as sediments are washed toward the basin's downstream gatehouse. An additional purpose of the project is to explore methods of operation or construction concepts that would more fully utilize the East Branch Lytle Creek Channel because, by design, it could certainly take more frequent flows and relieve the pressure from Lytle-Cajon Channel. For the past several years, the invert of Lytle-Cajon Channel has received all of the debris from the watershed drainage areas as it travels down this channel to its confluence with Warm Creek. This debris received by the Lytle-Cajon Channel has caused severe erosion and damage to the channel invert, with many areas exposed to the second layer of reinforcement bar. | | |
| South Coast | San Bernardino | Mission Zanja Creek Feasibility Study | $ 1,000,000 | The objective of the study will be to build upon the previous watershed planning efforts and provide viable alternatives to implement for improving water quality, and water supply aspects on a regional scale for the next generation. In addition, the study will provide avenues for responsible preservation and enhancement of the practical and sentimental values of the Zanja to the Native Gauchama Indians and its place in the National Register of Historical Places through potential partnerships in recreational and educational uses. The goals of the study focus on solving the flooding issues and implementing economic and environmentally viable alternatives for the long-term vision. | Yes | Water Quality |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | San Bernardino | New Model Colony Storm Drain Project - Ontario | $ 13,600,000 | The New Model Colony Storm Drain Project is a part of a long-term planned solution to a regional stormwater flood risk condition in an unimproved agricultural preserve in the City of Ontario's New Model Colony. Stormwater conveyance is critical to the overall regional improvement of storm drain risk management. The project provides stormwater drainage improvements on three arterial roadways within the New Model Colony area with a combination of source control, low-impact surface retention and treatment features, and drainage conveyance structures. | | |
| South Coast | San Bernardino | Pine Avenue Storm Drain Project - Chino | $ 4,900,000 | The project will construct stormwater drainage facilities, including a new box culvert, grading, and channel to avoid or reduce street flooding. Pine Avenue is a primary east-west regional arterial connecting commuter traffic, as well as local and interstate distribution, through the Inland Empire. Closure of the roadway due to flooding results in significant impacts to regional commuter and truck traffic flow, as well as an increase in the region's State and Interstate highway traffic. Deterioration of adequate stormwater conveyance in the Chino Preserve continues to threaten the viability public infrastructure, private property, local business, and the ability for the City to provide adequate emergency response. Completing this project substantially would address flood protection while supporting efforts to enhance water quality and impacts from erosion and sedimentation. | | |
| South Coast | San Bernardino | Plunge Creek Spillway | $ 1,365,611 | The project is to excavate the lower portion of the existing spillway to a depth of 8 feet and a radius of 250 feet around the base of the spillway to determine the location of the existing damaged structure. Construction activities will include cutoff walls, replacement of a lower invert section, invert repair and overlay, spillway walls, stilling basin rock pad, rock slope protection, and reinforced-concrete wing walls. | | |
| South Coast | San Bernardino | Rialto Channel at Riverside | $ 4,592,636 | This is for construction of the Rialto Channel flood protection project. The proposed improvements will reduce the potential for major flooding along the project site and preserve the safety and well-being of both life and structures. The improvements will provide and sustain vital infrastructure necessary to allow the community to continue to grow. | | |
| South Coast | San Bernardino | Rimforest Drainage | $ 1,500,000 | The village of Rimforest has eroding cliff-side property and bluff retreat in the southern part of the village. This problem is primarily caused by storm runoff from rainstorms and snowmelt after winter storms. The runoff flows to the south side of Rimforest and is discharged over the cliff at two principal locations. This study evaluated a number of options to redirect the majority of the runoff to other discharge locations to reduce and mostly eliminate the cliff-side erosion. Two options presented in this study appear to be feasible if new conventional storm drain systems are installed. | | |
| South Coast | San Bernardino | San Timoteo Basin Cleanup | $ 5,000,000 | This project provides for the study of methods to reduce the amount and frequency of sediment deposited into San Timoteo Basins 1 through 18. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | San Bernardino | Sand Creek/Warm Creek Confluence | $ 3,239,799 | This is to construct the Sand and Warm Creeks flood protection and water conservation project. The proposed improvements will reduce the potential for major flooding along the project site and preserve the safety and well-being of both life and structures. The improvements will provide and sustain vital infrastructure necessary to allow the community to continue to grow. | | |
| South Coast | San Bernardino | Turner Basin Improvements | $ 13,453,000 | The project area includes flood control channels, water conservation basins, and regional park facilities. The property is located between I-10 and 4th Street, and it is bifurcated by Archibald Avenue. Archibald Avenue, a major collector street, is one of the main transportation corridors into Rancho Cucamonga from I-10 and Ontario and is essentially a "gateway" into Rancho Cucamonga. In 2003, Inland Empire Utilities Agency with the Chino Basin Watermaster constructed water conservation facility improvements, including expansion of the stormwater retention basins. The improvements are to capture and conserve additional stormwater, including improvements on the western area of the Turner Basin site. The Turner Basin Improvements will be a multibeneficial use project that maximizes the use of the Turner Basin site by constructing stormwater capture basins, groundwater recharge basins, wetlands, native landscaping, road way improvements, recreation open spaces, educational trails about conservation and local history, and flood control improvements. | Yes | Water Supply |
| South Coast | San Bernardino | West Fontana Basin | $ 10,000,000 | The proposed project is the basin portion of an overall project that will include the expansion and lining of the existing West Fontana Channel and construction of a flow-by basin along the alignment and at an existing quarry pit (near Tokay Avenue). The existing channel is currently 12 feet wide and unlined. The design of the channel improvements, including the flow-by basin, has been selected from eight alternatives submitted by the County to the Regional Water Quality Control Board. The alternative selected would convey the 100-year flow of 3,515 cfs safely to Banana Basin and provide the adequate freeboard using the San Bernardino County Flood Control District right-of-way. Even though the basin's primary function will be to provide increased flood protection, it will also provide a reliable water supply, preserve and enhance the environment, ensure high-quality water, use rainfall as a resource, and maintain quality of life. | Yes | Water Supply |
| South Coast | San Bernardino | West State Street Storm Drain | $ 9,000,000 | This project is the final construction for the three-part system upstream from Central Avenue to Mountain Avenue. Estimated construction cost for this channel portion is $9.143 million. Segments I and II were completed in June 2003. | | |
| South Coast | San Bernardino | Wildwood Channel | $ 2,315,849 | This project will construct Wildwood Creek flood protection to reduce flood hazard risk in the area, incorporating preventative floodplain management tools. The project emphasizes the national goals of the Environmental Protection Agency to plan the development and use of land through preservation and enhancement of rivers, tributaries, streams, as well as the land drained thereby. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | San Bernardino | Wilson Creek Channel | $ 1,013,416 | Wilson Creek is one of the two major tributaries conveying water within the City of Yucaipa. Its lower reaches, from 13th Street to the western limits of the city, are anticipated to be modified to a trapezoidal earthen channel section with riprap channel banks ranging between 1.5:1 and 2.5:1 side slopes. The length of this improvement is approximately 5,315 feet. To minimize erosion, three drop structures are proposed, which will allow the channel to be constructed at a moderate slope of 1%. Grade-control dams will be located at 500-foot intervals for velocity and erosion control. Required right-of-way for this reach of the channel will be approximately 160 feet downstream of Dunlap Boulevard and 115 feet for a distance of 1,900 feet upstream of Dunlap Boulevard as proposed in the MDP. Two stormwater detention basins are proposed in the Wilson Creek watershed upstream of the project site. One, with a storage capacity of 103 acre-feet, is proposed upstream near the east side of Second Street. The second, with a capacity of 231 acre-feet, is proposed on the Oak Glen Wash tributary on the east side of Second Street, as a means of controlling peak runoff rates downstream at the confluence Live Oak Creek. | | |
| South Coast | San Diego | 11th Street Drainage Improvements - Ramona | $ 3,600,000 | This project will replace the existing 54-inch culvert with a 96-inch by 84-inch RCP system capable of conveying the required flow. The project is located on 11th Street between D Street and Main Street. | | |
| South Coast | San Diego | Aliso Canyon Road Drainage Improvements | $ 3,900,000 | This project replaces 2,100 feet of existing drainage culvert along Aliso Canyon Road. | | |
| South Coast | San Diego | Alpine Creek Improvements | $ 1,700,000 | This project will improve the flow capacity of Alpine Creek from Alpine Boulevard to Tavern Road. | | |
| South Coast | San Diego | Anna/University Upsize - Vista | $ 2,068,576 | Utility improvements associated with the project would consist of the relocation of some existing utilities and infrastructure, including existing storm drain inlets, sewer manholes, and water valve cans. | | |
| South Coast | San Diego | Avenida de la Playa Storm Drain Upgrades and Dry Weather Diversion | $ 5,757,470 | The project is designed to address the persistent problem of flooding along Avenida de la Playa in La Jolla and reduce bacteria loads to the Area of Special Biological Significance as a result of stagnation in the existing storm drain system. The current storm drain system is undersized and is unable to adequately convey stormwater flows from even moderate storms. As a result, flooding occurs, which damages local infrastructure, residences, and businesses. The project will address this issue by installing larger storm drains that will reduce the amount of flooding that occurs. This project will install a new outfall that will help rectify these issues and reduce flooding. | | |
| South Coast | San Diego | Bonita Road Culvert Crossing - Chula Vista | $ 950,000 | This project will reconstruct the crossing as reinforced concrete box culvert, redirect flow. Construct may coincide with the Willow Street Bridge project currently in design. | | |
| South Coast | San Diego | Bonsall Landfill Slope Repair and Drainage Improvements | $ 837,000 | This project includes repair of slope, access roadways, and upgrade stormwater conveyance systems to improve surface storm drainage onsite. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | San Diego | Brookside Creek Drainage Improvements - Spring Valley | $ 1,637,000 | The project will construct drainage channel improvements to convey the 100-year storm from 150 feet south of Lamar Street to 100 feet northwest of Central Avenue. | | |
| South Coast | San Diego | Calavo Drive Drainage Improvements - Valle de Oro | $ 850,000 | The project will replace the existing 60-inch RCP culvert with a system capable of conveying the required flow. | | |
| South Coast | San Diego | Campo Creek Watershed Groundwater Management Plan | $ 1,000,000 | This project would design and install an approved streambed and bank, as well as habitat stabilization and enhancement in a section of the valley and creek bed where extreme erosion has occurred. This would enhance groundwater recharge, greatly reduce downstream erosion and sediment transport, and revitalize the local valley, creekbed and habitat. | Yes | Ecosystem |
| South Coast | San Diego | County of San Diego Chollas Creek Runoff Reduction and Groundwater Recharge Project | $ 1,600,000 | The Chollas Creek Runoff Reduction and Groundwater Recharge Project is a project to reduce runoff from five County of San Diego facilities in the Chollas Creek subwatershed of the Pueblo San Diego hydrological unit. These facilities occupy sites that are highly impervious and could be retrofitted with LID components to reduce runoff and promote infiltration.<br>Because each of the properties has been developed to facilitate public access, and each site consists, in part, of significantly sized impervious parking lots, one component of this project will be to use what has been learned to date about porous pavements in the Porous Pavement and Model Municipal Operations Demonstration Project as the basis for retrofitting portions of the parking lots with porous pavement over stone reservoirs to capture runoff from the parking lots, and, where feasible, to capture runoff from roof drains.<br>The second major component of the project includes the application of other stormwater BMPs at the five County facilities that demonstrate both vegetated roof systems and the capture/reuse technologies, as well as landscape elements such as rain gardens. With an average annual rainfall of about 10 inches per year, greater attention must be given capturing and reusing as much rainfall as possible.<br>This project will demonstrate techniques to capture rainfall and to infiltrate or return to the atmosphere rainwater that cannot be captured and reused. The purpose of this retrofitting is to prevent runoff from these impervious surfaces from transporting pollutants—particularly copper, lead, and zinc—that have been directly deposited not only on the properties through atmospheric deposition and through the storm drain system but also to Chollas Creek, which has been listed as impaired by copper, lead, and zinc and is the subject of a TMDL currently proposed for approval by the San Diego Regional Water Quality Control Board. | Yes | Water Supply |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | San Diego | De Luz Road and Channel Repairs | $ 975,000 | The proposed project entails roadway and embankment repair, fence replacement, traffic striping, and restoration of two spillways. A temporary asphalt concrete patch will be removed and replaced with an asphalt concrete pavement section covering approximately 1,500 square feet of existing roadbed near the Santa Margarita River Bridge for De Luz Road. Damaged asphalt concrete dikes will be removed and replaced over a distance of approximately 450 feet. The road fill prism on the south bridge approach will be armored with installation of a riprap slope on the upstream and downstream faces. To protect the road from future runoff damage, this riprap slope will extend 12 feet underground or to the bedrock in the area, whichever is reached first. | Yes | Transportation |
| South Coast | San Diego | Dehesa Road Drainage Improvements - Crest/Dehesa | $ 720,000 | Project will replace the existing two 69-inch by 38-inch pipe culverts on Dehesa Road, 0.8 mile west of Sloane Canyon Road, with a system that is capable of conveying a 100-year storm. | | |
| South Coast | San Diego | Del Dios Highway Drainage Improvements - San Dieguito | $ 690,000 | This project will replace the existing 42-inch RCP culvert with a system capable of conveying the required flow. | | |
| South Coast | San Diego | East Los Coches Road Drainage Improvements - Lakeside | $ 4,100,000 | This project will replace the existing 60-inch pipe with a larger pipe, south of East Los Coches Road, between Calle De Buena Fe and Aurora Drive. | | |
| South Coast | San Diego | Eucalyptus Parallel - Vista | $ 1,990,872 | | | |
| South Coast | San Diego | F Street Drainage Improvements - Chula Vista | $ 580,000 | Over the years, several small midsized corrugated metal pipes (CMP) have been installed in this area. Several of the pipes have deteriorated and are starting to fail. Due to the number of pipes in the area, simply replacing or lining the pipes is not the appropriate solution. | | |
| South Coast | San Diego | Ferrara Parallel - Vista | $ 544,669 | | | |
| South Coast | San Diego | Foothill/Bobier Upsize - Vista | $ 2,127,587 | This project has been separated from the annual Street Rehabilitation and Maintenance (CIP #8037) due to the scope of the work. The project will reconstruct the portion of Foothill Drive between Beverly Drive and Vale Terrace. The project has four segments, including the following:<br>• Beverly Drive to Warmlands Avenue (Segment 3)<br>• Warmlands Avenue to north of Troy Place (Segment 4)<br>• North of Troy Place to south of Vine Circle (Segment 5)<br>• South of Vine Circle to Vale Terrace (Segment 6)<br>Each segment will be reconstructed to 24 feet wide with an asphalt concrete dike on each side to control drainage. Segment 5 (north of Troy Place to south of Vine Circle) will be reconstructed as a semi-rural arterial and will be 28 feet wide with a concrete curb and gutter. A graded disintegrated granite walkway for pedestrians will be installed on the east side of Foothill Drive between Vale Terrace Drive and north of Troy Place to serve the new Rancho Minerva Middle School. | Yes | Transportation |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | San Diego | Forester Creek Improvement Project | $ — | This funding is being requested to widen the Forester Creek Channel and to restore ecosystem function to the last viable stretch of Forester Creek before it enters the San Diego River. In its current condition, the creek in Santee has a channel width of 75 to 100 feet and can carry only a 10-year flow between its banks. The newly widened channel is designed to achieve 100-year flood capacity and will have a top width varying from 181 feet to 358 feet. Exotic plant species will be removed from the project area. Approximately 17 acres of native riparian vegetation will be created through a planting and plant establishment program. | Yes | Ecosystem |
| South Coast | San Diego | Galaxy Upsize -Vista | $ 1,072,677 | | | |
| South Coast | San Diego | Goodwin Upsize - Vista | $ 1,465,560 | | | |
| South Coast | San Diego | Hilltop Drive Drainage Improvements - Chula Vista | $ 500,000 | The project will install inlets, cleanouts, and RCP. | | |
| South Coast | San Diego | Hilltop Drive/L Street Drainage Improvements - Chula Vista | $ 100,000 | The project will redesign existing swale, install one cleanout and 350 feet of RCP. | | |
| South Coast | San Diego | Idaho Avenue Drainage Improvements - North County Metro | $ 530,000 | Project will replace the existing drainage culvert under Idaho Avenue. | | |
| South Coast | San Diego | Implementing Improvements to the Rose Creek Watershed: Controlling Invasive Exotic Species | $ 742,500 | This IRWM Plan proposal will support the removal and subsequent restoration of approximately 68 acres of invasive exotic plants in the Rose Creek Watershed in a manner to maximize improvements in water quality, biological diversity, enhanced public safety, reduced fire risk and enhanced community connections. The final acres of removal/restoration area will depend on the amount of funds awarded as removal costs vary depending on the species and difficulty of terrain, which varies throughout the watershed. | Yes | Ecosystem |

### Table E-E-1. Local Agency Planned Projects

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | San Diego | La Jolla Shores Ocean Protection Project | $ 2,192,000 | The project has three components.<br>1) *Irrigation Runoff Reduction* - Irrigation runoff from the western portion of the University of California, San Diego and Scripps Institution of Oceanography campus drains directly into Area of Special Biological Significance No. 31. Portions of the irrigation water distribution system will be improved to reduce water use and prevent irrigation water from discharging into the stormwater conveyance system. Improvements will include installing system controllers to automatically adjust irrigation times in response to changing daily evapotranspiration values and optimize the watering of poor drainage sites, slopes, and heavy soil areas.<br>2) *Pollutant Source Reduction* – The University of California at San Diego and the Urban Corps of San Diego will partner to implement BMPs throughout the La Jolla Shores watershed to reduce or eliminate the discharge of pollutants into the ocean, including nonstormwater discharges.<br>3) *Kellogg Park Green Lot LID* - This LID component will remove the western half of the asphalt paving of the Kellogg Park parking lot in the Peñasquitos Hydrologic Unit (HU) and replace it with porous concrete. The porous paving will allow urban runoff to infiltrate into the ground instead of discharging directly to the storm drain system, adjacent La Jolla Shores beach, and the ASBS. Educational outreach to the surrounding community will also be conducted regarding the benefits of the project in preserving and improving the quality of urban runoff and ultimately the nearby La Jolla Shores beach. | Yes | Water Quality |
| South Coast | San Diego | Lake Wohlford Dam Replacement Project - Escondido | $ 15,798,100 | This project would reduce seismic-related flooding hazards associated with the existing Lake Wohlford Dam, which is 114 years old and classified as seismically unstable. This issue would be resolved by replacing the existing Lake Wohlford Dam with a seismically sound earth-core rock fill dam. Replacing the existing Lake Wohlford Dam would substantially reduce infrastructure, ecosystem, public safety, and health impacts that are associated with potential flooding hazards. | | |
| South Coast | San Diego | Loma Alta Lagoon Acquisition and Restoration | $ — | A restoration plan will be developed to provide guidance and designs for restoration of the five parcels. By enlarging the lagoon in the area of these five parcels, a bottleneck would be removed allowing water to fan out and reduce flooding upstream from the lagoon. Implementation of the restoration plan will include acquiring all necessary permits and installation of native plants. Public access to the restored area would be allowed, but in a confined area of the project. A kiosk and parking area would be designed into the plan allowing access to residents and visitors. This would provide an opportunity for students to tour the site and possibly be involved in the actual project restoration. | Yes | Ecosystem |
| South Coast | San Diego | Los Angeles Parallel and Upsize - Vista | $ 4,308,605 | | | |
| South Coast | San Diego | Lower S Santa Fe Upsize - Vista | $ 3,525,982 | | | |
| South Coast | San Diego | Melrose Upsize - Vista | $ 1,477,440 | | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | San Diego | Melrose/SR-78 Parallel - Vista | $ 827,519 | | | |
| South Coast | San Diego | Mercantile Parallel - Vista | $ 2,361,728 | | | |
| South Coast | San Diego | Mesamint Street Drainage Improvements | $ 2,500,000 | This project improves the existing drainage system along Mesamint Street and Thornmint Street with a system capable of conveying the 100-year storm. | | |
| South Coast | San Diego | Middle South Santa Fe Parallel and Upsize - Vista | $ 1,626,598 | This project will upsize 12-, 8-, and 6-inch sewer lines to 18-, 15-, and 12-inch lines along S. Santa Fe Avenue, Mercantile Street, and Pala Vista Drive between Main Street and Rincon Street. | | |
| South Coast | San Diego | Naturalize Telegraph Canyon Creek Channel in the City of Chula Vista at San Diego Bay | $ — | The project will purchase property, demolish the concrete-lined channel, and restore a naturalized channel from the San Diego Bay to approximately 800 feet eastward; creating freshwater and coastal wetland and riparian habitat. | | |
| South Coast | San Diego | North Santa Fe/Citrus Parallel and Upsize - Vista | $ 3,018,111 | This project has been separated from the annual Street Rehabilitation and Maintenance (CIP# 8154) due to the scope of the work. This project will install a permanent storm drain system along N. Santa Fe Avenue for approximately 1,500 linear feet to address a groundwater problem. The project will repair and rehabilitate distressed pavement areas on Bobier Drive between N. Santa Fe Avenue and the City's western city limit east of N. Melrose Drive by resurfacing with asphalt concrete, which will include dugouts, skin patching, shoulder grading, traffic loops replacement, adjusting manholes to grade, restriping, and preservation of the well survey monuments. | | |
| South Coast | San Diego | Olive/Maryland Upsize - Vista | $ 935,912 | This project provides for design and construction to widen pavement, install sidewalks, improve storm drains, acquire right-of-way, and stripe for Class III bike lanes and parking. This project includes sidewalks on the east side of the street. Tasks to complete the project include detailed design and construction of the project. Phase I was completed in September 2006, which constructed improvements from Olive Avenue to Rose Drive. Phase II will construct improvements from Rose Drive to Highland Drive, including Maryland Court, Rose Court, and a portion of Olive Avenue. | Yes | Transportation |
| South Coast | San Diego | Otay River Channel Improvements - Chula Vista | $ 500,000 | | | |
| South Coast | San Diego | Palm Avenue Drainage Improvements - Chula Vista | $ 300,000 | This project will install four inlets, two cleanouts, and 2,000 feet of RCP and headwall. | | |
| South Coast | San Diego | Pepper Drive Drainage Improvements | $ 4,700,000 | This project provides improvements to the drainage facilities on Pepper Drive from Castlewood Drive to Mollison Street. | | |
| South Coast | San Diego | Redlands Parallel - Vista | $ 2,485,874 | | | |
| South Coast | San Diego | Roosevelt Street Drainage Improvements - Chula Vista | $ 60,000 | This project would construct a new curb inlet near the corner at the north side of Roosevelt, and if possible, tie into the westerly storm drain. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | San Diego | San Marcos Creek Floodway Improvement Project | $ 12,158,258 | The objective of this project is to contain the 100-year storm flows within the channelized area of San Marcos Creek so that disadvantaged areas adjacent to the creek are removed from the floodplain. The project would restore native riparian vegetation within the regraded channel to increase nutrient uptake and reduce sediment flowing downstream into Lake San Marcos. | Yes | Ecosystem |
| South Coast | San Diego | San Vicente Road Drainage Improvements - Ramona | $ 920,000 | The project will replace two existing 30-inch by 15-inch culverts with a larger culvert under San Vicente Road. | | |
| South Coast | San Diego | Santa Fe Place/Postal Upsize - Vista | $ 1,130,207 | This project will upsize 12-, 8-, and 6-inch sewer lines to 18-, 15-, and 12-inch lines along S. Santa Fe Avenue, Mercantile Street, and Pala Vista Drive between Main Street and Rincon Street. | | |
| South Coast | San Diego | Santa Maria Creek Flood Protection Corridor | $ 65,000,000 | This project includes a significant, far-reaching plan to preserve and protect from development a number of ranches of more than 1,000 acres that are located around the town site. There is pressure to develop in this rare coastal upland grassland, much of which constitutes a riparian/seasonal wetland area. This project promises to set aside a large area, then rebuild the creek and the native habitat to slow the waters, slow the erosion, and restore the riparian zones on Santa Maria Creek. | Yes | Ecosystem |
| South Coast | San Diego | SR-78/Hacienda Parallel - Vista | $ 2,574,113 | | | |
| South Coast | San Diego | Stabilization and Restoration of Bonita Canyon Creek - a Tributary of the Sweetwater River | $ — | The project will accomplish slope stabilization, channel restoration, and revegetation of the degraded earthen channel with native riparian species. | Yes | Ecosystem |
| South Coast | San Diego | Stabilization and Restoration of Long Canyon Creek - a Tributary of the Sweetwater River | $ — | The project will accomplish stabilization of eroded slopes, channel restoration, and revegetation of the degraded earthen channel with native riparian species. | Yes | Ecosystem |
| South Coast | San Diego | Summit Drive Drainage Improvements | $ 900,000 | This project will replace an existing 48-inch drainage culvert under Summit Drive. | | |
| South Coast | San Diego | Sweetwater River Channel Improvements - Chula Vista | $ 2,300,000 | This project is to install four cleanouts, six inlets, and 2,250 feet of RCP. An additional component is to install one inlet and 150 feet of RCP. | | |
| South Coast | San Diego | Sycamore Parallel and Upsize - Vista | $ 4,094,996 | | | |
| South Coast | San Diego | Telegraph Canyon South Branch - Chula Vista | $ 250,000 | This project provides for a drainage study to determine the adequacy of Telegraph Canyon Channel south branch. | | |
| South Coast | San Diego | Tijuana River Valley Invasive Plant Control Program - Phase 4 | $ 2,978,000 | The proposed project will control exotic plants, particularly giant reed (*Arundo donax*), tamarisk (*Tamarix* spp.), and castor bean (*Ricinus communis*), on 1,100 acres of prime estuarine and riparian habitats in the Tijuana River Valley. | Yes | Ecosystem |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | San Diego | Townsite Upsize - Vista | $ 2,579,270 | | | |
| South Coast | San Diego | Upper Santa Fe Parallel - Vista | $ 936,463 | | | |
| South Coast | San Diego | Urban Stormwater Runoff Treatment and Management Projects | $ 250,000,000 | | | |
| South Coast | San Diego | Vance Street Drainage Improvements | $ 200,000 | This project is to construct a new storm drain, catch basin, and outlet. | | |
| South Coast | San Diego | Vista Ramona Drainage Improvements | $ 430,000 | This project will replace two existing 30-inch corrugated-steel pipelines with a larger pipe under Vista Ramona north of Timber. | | |
| South Coast | San Diego | Vista/SR-78/Hacienda Parallel - Vista | $ 324,490 | | | |
| South Coast | San Diego | Vista/Valle Terrace/Williamston Parallel - Vista | $ 3,008,281 | | | |
| South Coast | San Diego | Wing Avenue Drainage Improvements | $ 6,500,000 | This project improves the capacity of the existing channel, adjacent to Wing Avenue, between State Route 67 and Bradley Avenue. | | |
| South Coast | San Diego | Woodside Avenue Drainage Improvements | $ 15,900,000 | Project will replace the existing drainage system with a new system capable of conveying the required flow under Woodside Avenue and State Route 67. | | |
| South Coast | Ventura | Lower Ventura River Habitat Restoration and Enhancement | $ 5,000,000 | The Lower Ventura River Habitat Restoration project involves acquiring land and conservation easements in the 100-year floodplain along lower reaches of the river. This project will include habitat restoration and enhancement along the lower 5 miles of the Ventura River up to and including the estuary. | Yes | Ecosystem |
| South Coast | Ventura | Arundell Barranca Study Channel Project Design and Construction | $ 22,430,000 | The proposed project is anticipated to reduce local flooding along two segments of the Arundell Barranca channel during severe rainstorms. This reduction in flooding would occur by increasing the existing capacity of the channel to convey stormwater during a 100-year storm event from the channel to the ocean. The end of the channel (proposed and existing) is at Ventura Harbor. | | |
| South Coast | Ventura | Calleguas Creek Watershed 5-year CIP Projects | $ 35,500,000 | | | |
| South Coast | Ventura | Calleguas Watershed - Bus Canyon Project | $ 29,875,000 | | | |
| South Coast | Ventura | Fox Barr., Southern Pacific Railroad to Grand Avenue Channel Improvements | $ 3,600,000 | This project is to replace the existing concrete channel and increase flow capacity. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | Ventura | J Street Drain - Ormond Beach to Hueneme Road | $ 10,000,000 | This project would construct channel improvements from Ormond Beach Lagoon to upstream of Hueneme Road to increase the capacity of the existing inadequate facility. The objective of the project is to provide 100-year flow protection to adjacent residential properties. | | |
| South Coast | Ventura | Levee Certification Program | $ 136,000,000 | | | |
| South Coast | Ventura | Lower Calleguas Creek - Integrated Watershed Protection - Projects | $ 345,000,000 | This project would provide a sound framework and guidelines for flood control, life/property protection, sediment management, and a holistic approach in integrated watershed planning and environmental resources management within the watershed. The multipurpose study encompassed issues related to habitat preservation, land development, erosion and sedimentation, BMPs, flood control, groundwater protection and recharge enhancement, water supply, water quality, and potential sources of funding for recommended projects, among others. | Yes | Ecosystem |
| South Coast | Ventura | Matilija Dam/Ventura River Ecosystem Restoration Project | $ 140,000,000 | This project involves the removal of the Matilija Dam that is almost completely trapped in sediment. | | |
| South Coast | Ventura | Natural Floodplain Protection Program (NFPP) and Santa Clara Floodplain Conservation Project | $ 5,000,000 | Implementation of the NFPP will preserve a critical section of the remaining undeveloped 500-year floodplain in the Santa Clara River Watershed by acquiring property easements to preclude development. Acquisition of these easements will provide downstream flood benefits by allowing flooding to occur upstream in the watershed. | Yes | Ecosystem |
| South Coast | Ventura | Ojai Meadows preserve Habitat Restoration and Flood Control Plan | $ 500,000 | At its Ojai Meadows Preserve, the Ojai Valley Land Conservancy (OVLC) seeks $500,000 to complete the final phase of an ecological restoration project to relieve flooding on the adjacent highway and high school, to filter runoff and recharge groundwater, and to restore wetland, riparian, and upland habitat for returning wildlife and the use and enjoyment by visitors. | Yes | Water Supply |
| South Coast | Ventura | Rice Creek Realignment and Enhancement | $ 500,000 | This project on the OVLC's Ventura River Preserve would return Rice Creek to its approximate historical location from its current channelized location. The project will add over 1,500 feet of new riparian habitat on the site and reestablish floodplain connections and buffer habitats. This project will help shade the water to keep it cool and reduce algal blooms, reduce sedimentation in Rice Creek and the Ventura River via erosion control, increase the numbers and variety of wildlife, and act as infiltration areas to support water storage for the Ventura River. | Yes | Ecosystem |
| South Coast | Ventura | Santa Clara River Watershed - Integrated Watershed Protection Plan - Projects | $ 216,346,000 | | | |
| South Coast | Ventura | Santa Clara River Watershed - Brown Barranca Project | $ 13,145,000 | The project would construct channel improvements from Santa Clara River to Telephone Road to upgrade the existing inadequate earth ditch. The objective is to provide 100-year flood protection to the adjacent properties and to eliminate erosion of the existing channel. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | Ventura | Santa Clara River Watershed - J Street Drain Project Phase - 2 | $ 11,350,000 | This project would increase the flow capacity of the existing J Street Drain within the existing right-of-way to accommodate runoff from a 100-year storm event, and reduce potential flooding in residential and commercial areas of the cities of Oxnard and Port Hueneme. | | |
| South Coast | Ventura | Santa Clara River Watershed - Oxnard Industrial Drain Project | $ 18,928,000 | | | |
| South Coast | Ventura | Santa Clara River Watershed - Peck Road Drain Project | $ 8,200,000 | | | |
| South Coast | Ventura | Santa Clara River Watershed 5-year CIP Projects | $ 58,500,000 | | | |
| South Coast | Ventura | Senior Canyon Detention Basin | $ 6,000,000 | This is a complete a detailed feasibility study for constructing a debris/detention basin at the existing basin site. The size of the basin is estimated to be more than 100 acre-feet. | | |
| South Coast | Ventura | Upper Calleguas Creek - Integrated Watershed Protection Plan - Projects | $ 211,079,000 | | | |
| South Coast | Ventura | Ventura County Watershed Protection Division Channel Emergency Repairs | $ 19,293,372 | | | |
| South Coast | Ventura | Ventura County Watershed Protection Division Channel Urgent Repairs | $ 11,338,094 | | | |
| South Coast | Ventura | Ventura River Watershed - Integrated Watershed Protection Plan - Projects | $ 36,905,000 | | | |
| South Coast | Ventura | Ventura River Watershed 5-year CIP Projects | $ 15,400,000 | | | |
| South Coast | Ventura | Ventura Watershed - Prince Barranca Project | $ 21,140,000 | The project would construct a detention/debris basin in the canyon to reduce design flood flows to the capacity of the existing flood conveyance facilities. The objective of the project is to increase the existing facility capacity enabling support of the 100-year flood flows. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Coast | Ventura | Ventura Watershed - San Jon Barranca Project | $ 11,400,000 | The scope of this study was to evaluate existing and proposed improvements and make recommendations for future consideration. The analysis of the Sanjon Barranca storm drain system indicated that the existing capacity is less than a 10-year storm. The corresponding expected annual damages due to residual flooding were estimated to be $435,000, with a corresponding present worth value of $6,000,000. The condition of the existing facilities is fair with an estimated life expectancy of 20 years with no treatment. | | |
| South Coast | Ventura | Virginia Colony Flood Storage and Habitat Enhancement Project | $ 6,015,015 | This project would acquire easements on seven properties, to construct a detention basin on the north side of the railroad tracks, to plan mitigation measures, and to cover part of the mitigation costs. Future phases include a detention basin on the south side of the railroad tracks, channel widening, and overflow channel. These facilities would be located on, adjacent to, or downstream from the parcels that could be acquired. Water quality would be improved by trapping sediments. Water storage will add to recharge of the groundwater aquifer. The project will provide passive public recreation. | Yes | Water Quality |
| South Lahontan | Inyo | Bishop Creek Flood Mapping Project | 300,000 | This project is intended to develop topographic mapping of the lower perennial Bishop Creek, update flow routing models, increase accuracy of the extent of flooding in lower reaches, and predict the magnitude and recurrence of naturally occurring flows. | | |
| South Lahontan | Inyo | Inyo/Mono Watersheds Invasive Weed Control Program | $ 461,257 | This project aims to control and eradicate invasive weeds that impact recreation, air quality, and fire hazards; to control water issues that include increased erosion, associated sedimentation, and lower water quality; and to resolve decreased flood control capacity and native habitat issues. | Yes | Water Quality |
| South Lahontan | Inyo | Oak Creek Watershed Fire/Flood Restoration Phase I | $ 355,760 | This is a three-phase project design. Phase I is the study and engineering portion of the project, which has begun with a Bureau of Reclamation grant to assess watershed and Oak Creek irrigation system issues. The participating tribe is requesting that IRWM Plan funding be used for the vast engineering of up to three flood diversions, two reservoirs, 3 miles of creek restoration, and up to 500 acres of irrigation system as a portion of Phase I. | Yes | Water Supply |
| South Lahontan | Inyo | West Walker River Channel Rationalization | $ 225,000 | This is an opportunity to merge holistic flood control planning with riverine enhancement. Currently, the river on the site is flat and unbounded, washing away farm soil and offering little chance for recovery of what, before the 1997 flood, had been a rich fishery environment. By incorporating natural "breakout" levees, flood events could be cost-effectively controlled, while influencing the river course in directions where historical tree-canopy fishing "hole" refuges could be restored. The pilot area for planning is a 3-mile section of the river. | Yes | Ecosystem |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Lahontan | Kern | Little Dixie Wash Flood Corridor Program | $ — | | | |
| South Lahontan | Los Angeles | 45th Street East Flood Control Basin | $ 22,500,000 | This project provides for construction of a drainage basin (2,083 acre-feet) near 45th Street East and Avenue P-8 on property of the City of Los Angeles Department of Airports. This project will integrate with the construction of the Avenue Q and 20th Street East detention basin for flood control, will provide possible groundwater recharge, and will preserve the natural habitat. | Yes | Water Supply |
| South Lahontan | Los Angeles | Amargosa Creek Pathways Project (Lancaster) | $ 1,300,000 | The Amargosa Creek Pathways Project, proposed by the City of Lancaster, includes development of a top-of-bank trail or paseo along the eastern side of Lake Lancaster, and construction of a foot-bridge structure crossing the lake and connecting under Highway 14 to link to the existing trailhead at the Antelope Valley Region Fairgrounds. The project integrates stormwater/flood control with enhancement and preservation of the natural riparian habitat, and management of open/recreational space and land use. The goal is to construct a pathway in harmony with established riparian habitat, within a flood control management basin that captures stormwater and nuisance water runoff that, in turn, sustains riparian habitat. This project will increase the amount of protected natural habitat and provide improved flood control within the Amargosa Creek watershed. | Yes | Recreation |
| South Lahontan | Los Angeles | Amargosa Creek Recharge and Channelization Project | $ 13,500,000 | This project will increase Antelope Valley's water supply, increase the amount of protected natural habitat, and provide improved flood prevention within the Amargosa Creek watershed. Proposed improvements include:<br>• Expanding the size and capacity of the spreading ground of the natural recharge area<br>• Developing and preserving an ephemeral stream habitat<br>• Channelizing the Amargosa Creek (soft bottom)<br>• Providing a grade separation of 20th Street West over Amargosa Creek<br>This project will integrate with the construction of the 20th Street West bridge over the Amargosa Creek, the channelization of Amargosa Creek between 25th Street West and 20th Street West, and the natural habitat preservation, as well as with existing upstream and downstream Amargosa Creek improvements. | Yes | Water Supply |
| South Lahontan | Los Angeles | Anaverde Detention Basin, Dam and Spillway at Pelona Vista Park | $ 10,000,000 | This project is to construct the Pelona Vista Dam grading, inlet/outlet structures, spillway, and storm drain piping. This project is a multipurpose flood control basin that has the ability to provide for wildlife habitat, conservation, and stormwater capture. | Yes | Ecosystem |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Lahontan | Los Angeles | Avenue Q and 20th Street East Basin (Q-West Basin) | $ 12,500,000 | This project provides for acquisition and construction of a 1,612 acre-foot detention basin between Avenue P-12 and Avenue Q, from 20th Street East and 30 Street East or on the Los Angeles World Airports (LAWA) property from Avenue P-8 to Avenue P-12. This project will integrate with the construction of the 45th Street East and Avenue P-8 detention basin for flood control, provide possible groundwater recharge, and enable natural habitat preservation. | Yes | Water Supply |
| South Lahontan | Los Angeles | Barrel Springs Detention Basin and Wetlands (Palmdale) | $ 10,000,000 | This project is for construction of an 878-acre-foot detention facility in the Barrell Springs area upstream of Old Harold Road and 25th Street East on 40 acres of City-owned property. This project will provide flood control for the City of Palmdale and will provide wetland enhancement and habitat protection. | Yes | Ecosystem |
| South Lahontan | Los Angeles | Hunt Canyon Groundwater Recharge and Flood Control Basin (Palmdale) | $ 10,000,000 | This project is for construction of a detention/recharge basin, south of Pearblossom Highway, at 57th Street East. The basin is to have a 3,000-acre-foot capacity and will be used for storing aqueduct raw water to recharge into the aquifer and for controlling floodwaters. The proposed project would alleviate flooding and have the potential to provide a recharge area for raw aqueduct water. | Yes | Water Supply |
| South Lahontan | Los Angeles | Integrated Regional Flood Management Plan | $ 300,000 | This project is for preparing an integrated flood management plan as part of the 2012 update to the Antelope Valley IRWM Plan funding with a Proposition 84, Round 1, Planning Grant. | | |
| South Lahontan | Los Angeles | Upper Amargosa | $ — | The project provides for a 20-acre recharge facility, a 38-acre community nature park, a 22-acre native habitat conservation area, and 7 acres of open stream channel. | | |
| South Lahontan | Los Angeles | 35th Street West Drainage Avenue L to Avenue K | $ 3,500,000 | This project will construct a storm drain to close a gap in the drainage system. | | |
| South Lahontan | Los Angeles | Quartz Hill Storm Drain | $ 7,000,000 | The Quartz Hill Drain and 50th Street West project consists of construction of a new underground storm drain system along 50th Street W between Avenue K and Avenue M-8, and road improvement through Quartz Hill downtown. Currently, the Quartz Hill community does not have an underground storm drain system, which results in severe flooding and significant disruptions when it rains. The new drainage system and road improvements are designed to keep the streets of Quartz Hill dry during future storm events. | | |
| South Lahontan | Los Angeles | Upper Amargosa Creek Flood Control, Recharge, and Habitat Restoration Project | $ 6,983,322 | This project will consist of a suite of activities designed to improve flood control, reduce dependence on imported water by stabilizing current groundwater levels (a source of local supply), and protect the environmental habitat. | Yes | Water Supply |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Lahontan | Mono | West Walker River Restoration Plan | $ 80,000 | The goal of this project is to develop a restoration plan via the completion of an assessment of the riverine and riparian conditions associated with approximately 3 miles of the West Walker River located within Antelope Valley, which is designated as an economically disadvantaged community. The Antelope Valley in Northern Mono County is home to roughly 15,000 acres of actively farmed land contributing significantly to local livelihoods. The West Walker River is ecologically important to imperiled, native trout. However this same area has experienced significant damage from stormwater events that have, in turn, resulted in significant impacts, including loss of productive farmlands, from flooding of the Walker River. In 1997, a 100-year flood event occurred, resulting in extensive losses of productive farmland and deleterious impacts to the Walker River ecosystem. Today, threats from stormwater and flood events remain, and losses of active riparian farmlands occur annually. Better understanding of the historical and current geomorphological processes associated with the West Walker River, along with assessing the current riparian habitat condition, is the first step in developing comprehensive stormwater/flood management that will provide the basis for long-term management of this economically and ecologically important portion of the Inyo-Mono IRWM region. This project will pay particular attention to assessing approximately 3 miles of the lower West Walker River system with the intent of developing management recommendations to ameliorate the threat to streambank stabilization and, in doing so, will contribute positively to local livelihoods and local fisheries. | Yes | Ecosystem |
| South Lahontan | Mono | Mountain Gate Trail and Restoration Project | $ — | The site has been frequently damaged by flooding. This project would restore the site and establish recreation and habitat at the site. | Yes | Recreation |
| South Lahontan | Mono | Rush Creek Floodway Improvements | $ — | The project would increase the capacity of the Rush Creek floodway at Silver Lake to minimize flooding and maximize peak flow events up to 750 cfs that will benefit the riparian ecosystem. | Yes | Ecosystem |
| South Lahontan | Mono | Town of Mammoth Lakes Storm Water Master Plan Development and Implementation | $ 507,000 | In May 2005, Mammoth Lakes updated its 1984 Storm Drain Master Plan (SDMP). The SDMP was primarily formulated to control the existing drainage and erosion problems by establishing a program to rehabilitate existing development areas, while providing policies, standards, and procedures to guide future development. | | |
| South Lahontan | Riverside | Indian Wells Valley Flood Control District Feasibility Study | $ 100,000 | This project would conduct a research and feasibility study to determine what mechanisms are available to provide flood control services within the Indian Wells Valley (IWV), as well as explore whether or not the mechanisms are viable options. The general purposes of a flood control district within the IWV is to avoid environmental damage caused by multi-year flood events, and to capture and put to new use waters produced in a multi-year flood event by recharging the IWV aquifer. Study would include a review of existing studies pertaining to master drainage plans with improvements for diversions and other facilities for recharge and flood control. | | |

### Table E-E-1. Local Agency Planned Projects

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Lahontan | San Bernardino | Amethyst Detention Basin | $ 12,100,000 | San Bernardino County proposes to construct Amethyst Basin (formerly known as Oro Grande Basin No. 9), with combined detention and stormwater recharge capabilities. The basin will include the construction of associated inlet and outlet structures, channels and/or closed conduits, transition structures, wingwalls, headwalls, cutoff walls, basin embankments, emergency spillways, access roadways along tops of the embankments and around the basins, and access ramps to the basin floor. | Yes | Water Supply |
| South Lahontan | San Bernardino | Antelope Valley Wash Recharge Ponds | $ 800,000 | Antelope Valley Wash Recharge Ponds could provide groundwater recharge upgradient from City of Hesperia wells. The Hesperia Master Plan of Drainage identifies a 65-acre site for a stormwater detention basin in the Antelope Valley Wash south of Ranchero Road. In addition to stormwater detention, the site might be able to accommodate groundwater recharge. The Morongo Basin Pipeline passes by this area and would be the source of recharge water. | Yes | Water Supply |
| South Lahontan | San Bernardino | Cedar Street Detention Basin | $ 2,000,000 | Cedar Street Detention Basin might provide the opportunity for recharge upgradient from the City of Hesperia wells. The Hesperia Master Plan of Drainage identifies a potential site for a stormwater detention basin at the east end of Cedar Street and southwest of the California Aqueduct. In addition to stormwater detention, the 120-acre site might be able to accommodate groundwater recharge. The California Aqueduct would be the source of recharge water. | Yes | Water Supply |
| South Lahontan | San Bernardino | Desert Knolls Wash, Phase 3 | $ 9,000,000 | This provides for construction of the project at the Desert Knolls Wash Reaches II and III for flood protection, water quality improvement, and water conservation. The project emphasizes the national goals of the Environmental Protection Agency to plan the development and use of land through preservation and enhancement of rivers, tributaries, and streams, as well as the land drained thereby. | Yes | Water Quality |
| South Lahontan | San Bernardino | Hesperia Detention Basin | $ 26,269,151 | | | |
| South Lahontan | San Bernardino | Kitchen/Dean Wash | $ 120,000 | | | |
| South Lahontan | San Bernardino | Mojave River I-15 Levee | $ 1,360,000 | This would construct the project at Mojave Levee Phase II for flood protection at a cost of $700,000. The project emphasizes the national goals of the Environmental Protection Agency to plan the development and use of land through preservation and enhancement of rivers, tributaries, streams, as well as the land drained thereby. | Yes | Ecosystem |
| South Lahontan | San Bernardino | Mountain View Acres | $ 7,065,000 | This provides for construction of the project at Mountain View Acres for flood protection, water quality improvement, and water conservation at a cost of $4 million. The project emphasizes the national goals of the Environmental Protection Agency to plan the development and use of land through preservation and enhancement of rivers, tributaries, streams, as well as the land drained thereby. | Yes | Water Quality |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| South Lahontan | San Bernardino | Ranchero Detention Basin | $ 12,075,672 | This is for construction of the project at the Ranchero Basin for flood protection, water quality improvement, and water conservation to help meet water demands and foster sustainable development in the rapidly developing communities, incorporating the latest science, engineering technology, climate models, and dual-purpose basin innovation. | Yes | Water Supply |
| South Lahontan | San Bernardino | Sheep Creek Major Repair | $ 2,075,000 | The San Bernardino County Department of Public Works is proposing to stabilize and restore the upper segment of Sheep Canyon Creek in the Wrightwood area of unincorporated San Bernardino County. The upper reaches of the creek are subject to severe erosion during storm events such that adjacent residential properties will be affected if measures to remedy the problem are not implemented. The County is proposing to install concrete structures in the channel bed and bank, and then backfill using native material. | | |
| South Lahontan | San Bernardino | Victorville – Line E-01 | $ 1,000,000 | | | |
| Tulare Lake | Fresno | Dry Creek Detention Basin Extension | $ 1,100,000 | Potential modifications to the existing facility include a gravity turnout from the Friant-Kern Canal and an energy dissipater. This would allow Big Dry Creek Reservoir to be filled to the DSOD-proposed maximum storage level of 10,000 acre-feet in a 2-week period. | | |
| Tulare Lake | Fresno | Eastside Water Quality and Urban Reliability Project | $ 20,000,000 | The project includes a direct groundwater recharge element (Traver Groundwater Bank) and a surface water treatment plant, which will provide a reliable supply of high-quality water to the current and future residents in the Cutler and Orosi communities and in surrounding unincorporated communities. All of the areas to be served are disadvantaged communities. The direct recharge elements of the project will capture and recharge stormwater and integrate flood retention benefits; enhance environmental wildlife habitat; and provide flexibility in operation, water control, and utilization. | Yes | Water Supply |
| Tulare Lake | Fresno | Fancher Creek Detention Basin | $ 2,600,000 | This project provides for a letter of map revision review in compliance with FEMA. | | |
| Tulare Lake | Fresno | Fancher Creek Flood Control Improvement Project - City of Fresno | $ 4,462,173 | The Fancher Creek Detention Basin removes 682 acres from the 100-year floodplain and redirects runoff that may contain pollutants to stormwater management basins, which results in approximately 740 acre feet of additional surface water recharge per year. Once complete, the basin will have sufficient capacity to provide 100-year control of the Fancher Creek flows. | Yes | Water Quality |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Tulare Lake | Fresno | Fresno Irrigation District (FID) Joint Conjunctive Use Project | $ 10,000,000 | The Fresno Irrigation District (FID) Joint Conjunctive Use Project is a cooperative effort among FID, a second undisclosed district, and other local and State agencies. This project intends to utilize resources that are available to FID that might not currently be maximized and to supplement FID water supplies. The project is an agricultural project that might ultimately provide water to urban and agricultural suppliers and facilitate the environmental benefits of improving the Kings River fishery. The project consists of expanding the recharge and banking facilities along the Kings River in Fresno and Kings counties in the vicinity of the Peoples Weir for diversion of unregulated Kings River flood flows, Central Valley Project (CVP) contract water, CVP floodwaters, and potentially other sources. Recovery wells will be installed to allow for a portion of the stored groundwater to be extracted. The project is a conjunctive use project, as the available water supply will be diverted to the expanded facilities for recharge and storage in the groundwater reservoir. | Yes | Water Supply |
| Tulare Lake | Fresno | Huckaby Project on Fancher Creek | $ — | | | |
| Tulare Lake | Fresno | Kings River Levee Evaluation Project | $ 2,000,000 | This project provides for a feasibility study of the Kings River Levee project. | | |
| Tulare Lake | Fresno | Kings River North Fork Flood Projection and Wildlife Enhancement Project | $ 3,274,512 | The Kings River North Fork Flood Protection and Wildlife Enhancement Project is located on the Kings River in northern Kings County. This area historically was prone to flooding prior to the development of the Kings River Channel Improvement Project by the USACE and the Kings River Conservation District. The flood project was authorized by the U.S. Congress in 1944 and completed in 1972. Due to its character and age, the project does not comply with current design or levee construction standards. The project utilized setback levees at many locations, incorporating existing conforming agricultural uses into the project. The agricultural uses provide benefit to the flood project in most locations; however, there is a flow constraint resulting from a large agricultural island at one location in the system. This location is immediately downstream from Island Weir and is upstream from State Highway 41. | Yes | Ecosystem |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Tulare Lake | Fresno | McMullin On-Farm Flood Capture and Recharge Project | $ 5,500,000 | This project is Phase 1 in a multi-phase project to capture Kings River flood flows, which would be utilized for on-farm conjunctive use activities (i.e., direct recharge, in-lieu recharge, irrigation). These objectives will be achieved through a combination of flood easements on 250 acres; upgrade to structures (e.g., turnout along the Kings River, McMullin Grade Crossing, Terranova Canal); and implementation of flood flow capture (FFC) BMPs on 1,250 acres. On-farm FFC activities are economically motivated by chronic and severe groundwater overdraft in Kings Basin threatening the viability of farming.<br><br>Phase 1 will divert flood flows through a 500-cfs-capacity turnout onto farm fields for conjunctive use activities developed under a current NRCS pilot study. Phase 1 targets capturing (when available) 150 cfs of winter flood flows for direct recharge (9,375 acre-feet per month); 1,800 acre-feet for replenishing root zone moisture, and an average of 2,025 acre-feet per month for in-lieu recharge. Under Phase 1, the legal entity McMullin Flood Flow Capture District, which is composed of supporting landowners and others involved in groundwater and flood flow issues, will be formed. These technical, organizational and logistical efforts will be the foundation of subsequent phases, increasing the conjunctive use acreage to 5,000 acres to divert 500 cfs onto farms for recharge.<br><br>At completion, this project will have the capacity to recharge 30,000 acre-feet per month for direct recharge in the winter, 4,800 acre-feet to replenish soil moisture, and an average of 5,400 acre-feet per month for in-lieu recharge during the spring. Kings River is managed by Kings River Water Association (KRWA) in coordination with USACE and its management of the San Joaquin River. This project will have the capacity to divert up to 10% of Kings River flood flows (entering into the Mendota Pool through the James Bypass) and greatly ease flood flow pressures at that location, as well as at areas upstream along the Kings River and downstream in the San Joaquin River. | Yes | Water Supply |
| Tulare Lake | Kern | Caliente Creek Habitat Restoration - Feasibility Study | $ 500,000 | The project consists of a study to determine the feasibility of acquiring land upstream of Highway 58 and restoring habitat to intercept floodwater and help mitigate routine flooding of Arvin and Lamont. | Yes | Ecosystem |
| Tulare Lake | Kern | Calloway Cross Valley Canal Intertie | $ 13,700,000 | This project would modify conveyance systems to enhance exchanges and delivery of supplies to in-lieu and direct absorptive capacity. | Yes | Water Supply |
| Tulare Lake | Kern | Cuddy Creek Restoration Project – Phase 1 | $ 1,000,000 | This project provides for the stabilization and restoration of approximately 3,000 feet of Cuddy Creek. These steps would reduce soil erosion in the watershed and sedimentation in surface water, which would reduce the discharge of pollutants to State waters from storm or nonpoint sources. | Yes | Water Quality |
| Tulare Lake | Kern | Formation of Flood Control District | $ — | | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Tulare Lake | Kern | Improved Stormwater Management and Flood Control in Arvin Edison Water Storage District | $ 1,000,000 | | | |
| Tulare Lake | Kern | Kern County's Southern San Joaquin Valley Flood Mitigation Plan | $ 10,000,000 | This plan addresses 40 coordinated projects that can be constructed to enhance groundwater recharge, preservation of habitat, and management of flood and debris flows from the various watersheds that drain into the Southern San Joaquin Valley portion of Kern County. | Yes | Water Supply |
| Tulare Lake | Kern | Kern Lake Hydrologic Analysis | $ 100,000 | This analysis would develop the flood flow frequency peak-flows and volume distributions, as well as time-off set parameters and outflow relationships required for the determination of floodplain mapping and the development of flood control mitigations in the Kern Lake Basin. | | |
| Tulare Lake | Kern | Kern River Shoreline 48 Acres | $ 550,000 | With the help of numerous volunteer groups, irrigation water mains and lateral lines will be installed as part of the restoration projects. The project will extend water lines and restore an additional 48 acres of Kern River shoreline and floodplain. The water will maintain native trees that will be planted along the highly visible Kern River floodplain. The project will include the replanting of riparian vegetation, including approximately 500 trees and shrubs, and installation of California native "golden" grass seed mix to enhance the natural Kern River habitat area. This project will implement a more environmentally sensitive flood management regime by relieving the tendencies for erosion of levees and riverbanks, thereby reducing the need to build levees higher or performing expensive rehabilitation of damaged levees. The addition of trees and native vegetation at the project site will resolve flood damage issues for floods up to the Standard Project Floods that exceed a 100-year storm. | Yes | Ecosystem |
| Tulare Lake | Kern | Kern River Shoreline Project Maintenance for Project Life | $ 9,000,000 | | | |
| Tulare Lake | Kern | Pipeline Connecting Friant-Kern Canal in Support of Flood Storage Reservoir in Poso Creek Drainage | $ 75,000,000 | The proposed project is to connect the Friant-Kern Canal to a proposed 50,000-acre-foot flood storage reservoir in the Poso Creek drainage area east of State Highway 65. Stored floodwater would be delivered for irrigation. | Yes | Water Supply |
| Tulare Lake | Kern | Reconstruction Adams/Jefferson Street, Ford City | $ 100,000 | | | |
| Tulare Lake | Kern | Rock Meadow Riparian Vegetation Restoration (32 acres) | $ 32,000 | The project would fence off and restore approximately 32 acres of riparian vegetation along the Kern River, including replanting native trees and bushes and installing an irrigation system. | Yes | Ecosystem |
| Tulare Lake | Kern | Sandy Creek Bank and Erosion Protection - Feasibility Study | $ 100,000 | This project would consist of a study to determine the feasibility of restoring a portion of Sandy Creek through the community of Taft. | | |

**Table E-E-1. Local Agency Planned Projects**

| Hydrologic Region | County | Local Agency Project Name | Estimated Cost for Local Agency | Project Description | IWM Project | Type of IWM Project |
|---|---|---|---|---|---|---|
| Tulare Lake | Kern | Storm Water Filtration and Retention Project | $ 500,000 | The project involves installation of stormwater recapture and filtration units within the Ventura city limits and surrounding areas. Water will be placed in retention basins for use on irrigation projects. | Yes | Water Supply |
| Tulare Lake | Kings | Kings River Critical Levee Repairs | $ 5,000,000 | This project provides for the restoration and protection of the Kings River levees operated by the Kings River Conservation District. | Yes | Recreation |
| Tulare Lake | Kings | Kings River Levee Evaluation | $ 2,000,000 | This project is a feasibility study of levees as part of floodplain management. | | |
| Tulare Lake | Kings | Kings River South Fork Setback Levee Project | $ — | This project is for floodplain management and land acquisition. | | |
| Tulare Lake | Kings | North Fork Recharge Sites 11 and 16 | $ 750,000 | This project provides for construction of a groundwater management measure. | Yes | Water Supply |
| Tulare Lake | Kings | River Ranch Valley Oak Habitat Restoration and Groundwater Recharge Project, South Fork Kings River | $ 7,000,000 | The project is for environmental and habitat protection, as well as improvement conservation. | Yes | Ecosystem |
| Tulare Lake | Tulare | Paregien Basin Project | $ 2,150,000 | This project consists of a 78-acre groundwater recharge basin, associated structures, and monitoring wells that would capture floodwaters for groundwater recharge. The basin is in an established riparian condition, which is to be preserved and enhanced. | Yes | Water Supply |
| Tulare Lake | Tulare/Kings | Upper San Joaquin River Basin Storage Investigation | $ 62,251,000 | DWR, U.S. Bureau of Reclamation, and their partners have developed a two-phase Plan of Study. Phase 1 will identify water resource opportunities and issues in the Upper San Joaquin River watershed. This phase will include an appraisal of opportunities to increase surface storage and conjunctive uses for groundwater. Phase 2 will be more detailed and will begin with public meetings to determine the scope of the study. The purpose of this project is to determine the type and extent of Federal, State, and regional interests in a potential project in the upper San Joaquin River watershed. The project would improve water supply reliability and flexibility of the water management system for agricultural, urban, and environmental uses and would enhance San Joaquin River water temperature and flow conditions to support anadromous fish restoration efforts. | Yes | Water Supply |

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**Table E-E-2. USACE Planned and Ongoing Projects**

| Hydrologic Region | USACE District | County | USACE Project Name | USACE Project Cost Share (Federal Cost Share) | Project Description | IWM Project | Type of IWM Project | Project Funded in FY 2012 | Funding Appropriated in FY 2012 |
|---|---|---|---|---|---|---|---|---|---|
| San Francisco Bay | San Francisco | Alameda | Estudillo Canal, California | $38,000,000 | The study area is located within the city of San Leandro, California, about 15 miles southeast of San Francisco. The watershed drains into San Francisco Bay, with a drainage area of approximately 10 square miles. A substantial number of properties within this densely populated area are designated as being in a Federal Emergency Management Agency (FEMA) Floodplain. The study will evaluate potential flood damage reduction alternatives in a highly developed area. | Yes | Ecosystem, Recreation, Flood Risk Management | No | |
| San Francisco Bay | San Francisco | Alameda | Oakland Airport Dike, California | $100,000 | The Port of Oakland plans to construct improvements to the perimeter dike that forms the southwestern shoreline of the Airport property, in Alameda County, California. The perimeter dike serves as the flood protection system for the Airport and surrounding areas. The dike includes two distinct types of materials—clay and sand. Improvements would include a stability berm along those portions of the dike with low elevations to obtain FEMA certification of the dike for 100-year flood protection, and strengthening the sand dike portions to reduce the vulnerability of the dike to damage during seismic events. In order to construct seismic improvements, fuel pipelines in the sand dike might need to be relocated. Improvements might impact wetlands and other areas within the jurisdiction of the USACE, as well as areas within the 100-year floodplain. | | | No | |

**Table E-E-2. USACE Planned and Ongoing Projects**

| Hydrologic Region | USACE District | County | USACE Project Name | USACE Project Cost Share (Federal Cost Share) | Project Description | IWM Project | Type of IWM Project | Project Funded in FY 2012 | Funding Appropriated in FY 2012 |
|---|---|---|---|---|---|---|---|---|---|
| San Francisco Bay | San Francisco | Alameda | San Lorenzo Creek, California | $100,000 | Construction of the San Lorenzo Creek Flood Control Project was authorized in the 1954 Flood Control Act and built in 1959 to 1961 to contain the standard project flood, determined to be 10,400 cubic feet per second (cfs) at that time. The San Lorenzo Creek Federal Flood Control Project is located on 3,200 linear feet at the downstream end of San Lorenzo Creek. Levees are built on both sides of the channel with inboard berms. Riprap armors portions of the levees. A reevaluation of the San Lorenzo Creek Federal Flood Control Project is necessary to determine what steps can be taken to reduce flood damage and reduce risk in the community. | | | No | |
| San Francisco Bay | Sacramento | Contra Costa | Grayson and Murderer's Creeks, Walnut Creek Basin, California | $2,452,000 | The Grayson and Murderer's creeks feasibility study is investigating flood damage reduction, ecosystem restoration and recreation in the Grayson Creek sub-watershed of the Walnut Creek watershed. The study is considering detention basins, channel modifications, levee and floodwall improvements, and other structural and nonstructural measures for flood damage reduction on Grayson Creek and its tributaries. The ecosystem restoration and recreation measures that are being considered would be secondary to the flood damage reduction objective. | Yes | Ecosystem, Recreation, Flood Risk Management | No | |
| San Francisco Bay | Sacramento | Contra Costa | Lower Walnut Creek General Reevaluation | $3,360,000 | The lower Walnut Creek General Reevaluation is a multi-objective project to create a more sustainable facility that maintains or improves the level of flood protection while preserving sensitive habitat for rare and endangered species. | Yes | Flood Risk Management, Ecosystem Restoration | No | |

**Table E-E-2. USACE Planned and Ongoing Projects**

| Hydrologic Region | USACE District | County | USACE Project Name | USACE Project Cost Share (Federal Cost Share) | Project Description | IWM Project | Type of IWM Project | Project Funded in FY 2012 | Funding Appropriated in FY 2012 |
|---|---|---|---|---|---|---|---|---|---|
| San Francisco Bay | Sacramento | Sacramento, Yolo, Solano, Contra Costa, San Joaquin | Sac-San Joaquin Delta Islands and Levees, California | $6,000,000 | Develop a road map to identify water and related land resources problems and opportunities; utilize a watershed approach for the majority of the study area (740,000 acres), possibly incorporating a feasibility level of study for the sponsor's greatest area of concern. | Yes | Ecosystem Restoration, Flood Risk Management | Yes | $ 971,000 |
| San Francisco Bay | San Francisco | Contra Costa | Wildcat and San Pablo Creeks, California | $5,000,000 | The study area is located in the cities of Richmond and San Pablo, California. Reach 1 of the authorized flood risk management project was completed by USACE in 1995, and is located in the city of Richmond. Reach 2, within the city of San Pablo, was not constructed at the time because of concerns about economic justification, and it was subsequently placed in the deferred status. Recent flow/frequency projections, and new FEMA floodplains, as well as a 905b reconnaissance report show that Reach 2 may be economically justified at this time. | Yes | Ecosystem, Water Quality | No | |
| North Coast | San Francisco | Del Norte | Crescent City Harbor | | Ongoing repair and dredging of Crescent City Harbor facilities. | Yes | Recreation | No | |
| Sacramento River | Sacramento | Glenn | Sacramento River, Glenn-Colusa Irrigation District, California | $23,380,000 | Stabilizing the river level on the Sacramento River near Hamilton City is an essential component of the Glenn-Colusa Irrigation District Fish Screen Improvement Project. Stabilization will preserve the agricultural irrigation supplies to roughly 1,200 farm families, while complying with the Federal Endangered Species Act and contributing to the restoration of anadromous fish species in the Sacramento River. Improvement will ensure the continued operation of the pumping facility. | Yes | Agriculture, Water Quality, Water Supply | No | |

**Table E-E-2. USACE Planned and Ongoing Projects**

| Hydrologic Region | USACE District | County | USACE Project Name | USACE Project Cost Share (Federal Cost Share) | Project Description | IWM Project | Type of IWM Project | Project Funded in FY 2012 | Funding Appropriated in FY 2012 |
|---|---|---|---|---|---|---|---|---|---|
| Tulare Lake | Sacramento | Kern | Isabella Lake Dam Modification Project | $500,000,000 | At the Isabella Lake Project, the primary objective of the Dam Safety Modification (DSM) project is the remediation of the seismic, hydraulic, and seepage deficiencies in order to permit the project to function safely and effectively while reducing the risk to the downstream public. The main project features will include:<br>• Main Dam full height filter and drain (with an approximately 16-foot crest raise<br>• Improvements to the existing spillway<br>• New 900-foot emergency spillway<br>• Auxiliary Dam modification (with an approximately 16-foot crest raise<br>• 80 feet (crest width) downstream buttress<br>• Shallow foundation treatment<br>• Upstream berm<br>• Replacement of Borel conduit through right abutment of Auxiliary Dam<br>• Relocation of Highways 155 and 178 to accommodate the crest raise | | | Yes | $ 4,731,800 |
| Tulare Lake | Sacramento | Kern | Poso Creek, California | $4,000,000 | This project is a feasibility study of construction of a flood risk management reservoir on Poso Creek. | | | No | |
| South Coast | Los Angeles | Los Angeles | Coast of California, South Coast Region | $5,182,000 | Prepare a quantitative sediment budget based on previously analyzed data. Prepare an analysis of the probable effects of future sea level rise for three scenarios. Prepare responses to Agency Technical Review comments on the draft Report (May 2009). Revise the draft chapters for the Coast of California Storm and Tidal Wave Study-Los Angeles Final Report. | | | No | |

**Table E-E-2. USACE Planned and Ongoing Projects**

| Hydrologic Region | USACE District | County | USACE Project Name | USACE Project Cost Share (Federal Cost Share) | Project Description | IWM Project | Type of IWM Project | Project Funded in FY 2012 | Funding Appropriated in FY 2012 |
|---|---|---|---|---|---|---|---|---|---|
| South Coast | Los Angeles | Los Angeles | Los Angeles County Drainage Area Whittier Narrows Water Conservation, California | $1,200,000 | Whittier Narrows Water Conservation project will expand water conservation pool behind Whittier Narrows Dam from 2,500 acre-feet to 3,500 acre-feet. Projected partners are Los Angeles County Department of Public Works, Water Replenishment District of Southern California, and USACE. The $1.2 million USACE cost share total figure reflects Federal appropriations to date (over several years, the last one being in 2010). | Yes | Water Supply | No | ZERO in construction, but LACDA did receive funding as an overall line item of $4,933,170 in O&M |
| South Coast | Los Angeles | Los Angeles | Los Angeles County Drainage Area, California | $39,650,000 | Project consists of channel improvement to lower the Los Angeles River, Rio Hondo, and Compton Creek, and modification/replacement of as many as 25 bridges necessitated by the channel improvements. (Total USACE cost share is a combination of $4,650 and $35,000.) | | | No | ZERO in construction, but LACDA did receive funding as an overall line item of $4,933,170 in O&M |
| San Joaquin River | Sacramento | Madera | Hidden Dam, Hensley Lake, California | $8,300,000 | Dam safety evaluation of Hidden Dam to investigate seepage and seismic issues. | | | No | |
| San Francisco Bay | San Francisco | Marin | Corte Madera Creek, California | $37,100,000 | Corte Madera Creek and its tributaries drain an area of about 28 square miles in Marin County, and flow into the west side of San Francisco Bay. Corte Madera Creek basin is primarily a residential area, north of San Francisco. The principal communities include Corte Madera and Larkspur (combined population of about 30,000 as of January 1998). Extensive flooding continues to occur through Ross Valley and the communities of Ross, Kentfield, Larkspur, Corte Madera, and Greenbrae. The value of lands and improvements to be protected by the project is estimated to be $186 million. The project would provide protection to public, residential, and commercial property along Corte Madera Creek. | | | No | |

**Table E-E-2. USACE Planned and Ongoing Projects**

| Hydrologic Region | USACE District | County | USACE Project Name | USACE Project Cost Share (Federal Cost Share) | Project Description | IWM Project | Type of IWM Project | Project Funded in FY 2012 | Funding Appropriated in FY 2012 |
|---|---|---|---|---|---|---|---|---|---|
| San Francisco Bay | San Francisco | Marin | Las Gallinas Creek, California | $510,000 | The Las Gallinas Creek Flood Risk Management Study is a Section 205 Continuing Authorities Program study of the Las Gallinas Creek levee in Santa Venetia. The primary goals of the study are to define the level of protection currently afforded by the existing levee system and determine whether a Federal economic interest exists to proceed with design and construction of an improvement alternative. The current floodwall was added to the levee system in 1983 in response to flooding that resulted from overtopping during a record breaking high tide. The floodwall now needs to be replaced. | | | No | |
| North Coast | San Francisco | Mendocino | Coyote Valley Dam, California | $150,000,000 | The study area is located in northern California on the east fork of the Russian River at Coyote Valley, near the city of Ukiah. The Russian River drains an area of 1,485 square miles. Approximately two-thirds of this area is in Sonoma County, with the remainder in Mendocino County. The existing USACE project, Coyote Valley Dam, which was completed in 1957, consists of an earth-filled dam 160 feet high and 3,560 feet long, with a reservoir storage capacity of 122,000 acre-feet. The authorized project included sediment, flood risk management, and domestic and agricultural water supply pools with a total storage capacity of 199,000 acre-feet. An additional water supply portion, which included additional storage for about 77,000 acre feet, was placed in the deferred category as local interest considered it unnecessary at that time. Since then, increased development has created a need for additional water supplies. | Yes | Agriculture, Water Quality, Water Supply | No | |

**Table E-E-2. USACE Planned and Ongoing Projects**

| Hydrologic Region | USACE District | County | USACE Project Name | USACE Project Cost Share (Federal Cost Share) | Project Description | IWM Project | Type of IWM Project | Project Funded in FY 2012 | Funding Appropriated in FY 2012 |
|---|---|---|---|---|---|---|---|---|---|
| San Joaquin River | Sacramento | Merced | Merced County Streams, California | $2,500,000 | This project will provide flood protection to residential, commercial, and agricultural lands adjacent to the cities of Merced and Atwater. This area's flood protection is currently at a 50-year storm level. Funding will be used to re-scope the study area to reduce the cost of the project, and to provide 200-year level flood protection to the area. Unless corrective measures are taken, dam and levee failures could occur, leading to catastrophic damage. | | | No | |
| San Francisco Bay | Sacramento | Napa | Napa River, California | $283,093,000 | The Napa River Flood Protection Project will provide 100-year flood protection to the City of Napa, protecting business and residences, and improving water quality, creating urban wetlands, enhancing wildlife habitats, and creating over 730 acres of tidal wetlands. | Yes | Flood Risk Management, Recreation | Yes | $ 1,300,000 |
| San Francisco Bay | San Francisco | Napa | St. Helena Comprehensive Flood Protection Project, California | $30,000,000 | The project is located within the city of St. Helena along the Napa River. Major floods have occurred on the Napa River in this area in 1986, 1995, 1997, and 2006. Combined, these floods cost the community over $95.6 million in property damages. The project will restore habitat of the natural floodplain terraces, including riparian and aquatic habitat. Also, the project will restore native plant and tree communities through revegetation efforts and is needed to provide 100-year flood protection to the area. The Water Resources Development Act (WRDA) of 20 07 authorized the construction of the project substantially in accordance with the California State Environmental Impact Report, as opposed to a Chief's Report. | Yes | Ecosystem, Water Quality | No | |
| North Lahontan | Sacramento | Nevada | Martis Creek Lake Dam Safety Assurance Program | $16,700,000 | Project to evaluate the Martis Creek Dam for potential risk from seismic, seepage, and hydraulic issues. | | | Yes | $ 1,777,500 |

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| Hydrologic Region | USACE District | County | USACE Project Name | USACE Project Cost Share (Federal Cost Share) | Project Description | IWM Project | Type of IWM Project | Project Funded in FY 2012 | Funding Appropriated in FY 2012 |
|---|---|---|---|---|---|---|---|---|---|
| South Coast | Los Angeles | Orange | San Clemente Shoreline, California | $5,553,000 | The purpose of the project is to provide the most technically feasible and economically beneficial plan for reducing shoreline erosion and protecting coastal infrastructure from storm-induced wave attack along the San Clemente, California, shoreline. | | | No | |
| South Coast | Los Angeles | Orange | San Juan Creek, South Orange County, California | $3,265,000 | The feasibility study will investigate flood risk management alternatives and other related purposes along the lower portions of San Juan, Trabuco, and Oso creeks. | Yes | Ecosystem | No | |
| South Coast | Los Angeles | Orange | Santa Ana River Basin, California | $2,102,400,000 | The Santa Ana River Mainstem Project is designed to provide flood protection to the growing urban communities in Orange, Riverside, and San Bernardino counties. The proposed improvements to the system cover 75 miles, from the headwater of Santa Ana River east of the city of San Bernardino to the mouth of the river at the Pacific Ocean, between the cities of Newport Beach and Huntington Beach. | Yes | Ecosystem, Recreation, Water Quality | Yes | $3,425,400 in O&M; the MAINSTEM project received $23,093,000 in Construction |
| South Coast | Los Angeles | Orange | Surfside-Sunset-Newport Beach, California | $75,100,000 | This project supports periodic beach nourishment in Surfside, Sunset, and Newport Beach. | Yes | Recreation | No | |
| South Coast | Los Angeles | Orange | Westminster (East Garden Grove) Watershed, California | $6,260,000 | A comprehensive study of the Westminster Watershed, including the East Garden Grove-Wintersburg Channel and the Bolsa Chica Flood Control Channel to develop a rehabilitation plan that will consider flood risk management, ecosystem restoration, recreation, and water quality solutions. This project is consistent with the USACE flood risk management and environmental restoration missions in Southern California. | Yes | Ecosystem, Recreation, Water Quality | No | |

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| Hydrologic Region | USACE District | County | USACE Project Name | USACE Project Cost Share (Federal Cost Share) | Project Description | IWM Project | Type of IWM Project | Project Funded in FY 2012 | Funding Appropriated in FY 2012 |
|---|---|---|---|---|---|---|---|---|---|
| South Coast | Los Angeles | Orange, San Diego | California Coastal Sediment Master Plan, California | $7,100,000 | This project will develop a comprehensive master plan for the conservation, restoration, and preservation of the valuable sediment resources along the coast of California to reduce shoreline erosion and coastal storm damages, provide for environmental restoration and protection, increase natural sediment supply to the coast, restore and preserve beaches, improve water quality along coastal beaches, and optimize the beneficial use of material dredged from ports, harbors, and other opportunistic sediment sources. | Yes | Ecosystem, Water Quality | Yes | $ 861,000 |
| South Coast | Los Angeles | Riverside | Murrieta Creek, California | $122,200,000 | The project is a multi-purpose flood risk management, environmental restoration and recreation project along 7.5 miles of Murrieta Creek. The major project features include:<br>• Channel widening and deepening<br>• Environmental corridor along the length of the project<br>• Multipurpose detention basin<br>• Wetland restoration area<br>• Recreation park<br>• Three bridge replacements | Yes | Ecosystem, Recreation, Water Quality | No | |
| South Coast | Los Angeles | Riverside | Norco Bluffs, Santa Ana River, California | $15,130,000 | The project consists of a structural solution of revetted-buttress fill using existing and imported fill material for one reach, a distance of 1 mile. The bluff stabilization protects a 65-foot-high bluff from further retreat into a residential neighborhood, which results when flood flows occur in the Santa Ana River. | | | No | |
| South Coast | Los Angeles | Riverside | Prado Basin Water Supply, California | $1,465,000 | Feasibility Report for the Proposed Prado Basin Water Supply. The project will result in increasing the water storage pool during the flood season from an elevation of 494 feet to an elevation of 498 feet within Prado Basin. This will enable increased water recharge at the Orange County Water District's recharge facilities downstream of Prado Dam. | Yes | Water Quality, Water Supply | No | |

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| Hydrologic Region | USACE District | County | USACE Project Name | USACE Project Cost Share (Federal Cost Share) | Project Description | IWM Project | Type of IWM Project | Project Funded in FY 2012 | Funding Appropriated in FY 2012 |
|---|---|---|---|---|---|---|---|---|---|
| Colorado River | Los Angeles | Riverside | Whitewater River Basin, California | | The feasibility study was completed in October 2000. The Alternative 6 recommended project consists of constructing four levees to protect the southern portion of the alluvial fan. The current design would replace the downstream levee with incised channel. | | | No | |
| Sacramento River | Sacramento | Sacramento, Yolo, Solano, Contra Costa, San Joaquin | CALFED Levee Stability Program, California | $196,000,000 | A report that identified and prioritized potential levee stability projects in the Delta. Through the CALFED Levee Stability Program, the USACE is authorized to participate in flood risk improvements to Delta and Suisun Marsh levees with the potential for incorporation of ecosystem restoration elements. Additionally, the authorization has provided the opportunity to develop Emergency Response Planning tools in partnership with the California DWR. | Yes | Ecosystem Restoration, Flood Risk Management | No | |
| South Coast | Los Angeles | San Diego | Imperial Beach, Silver Strand Shoreline, California | $84,410,000 | The Imperial Beach shoreline has been heavily impacted by erosion, which is caused by a lack of sediment transfer from the Tijuana River and San Diego Harbor due to dam and jetty impediments. The sources of this erosion are a Federal jetty protecting the San Diego Harbor and three dams on the Tijuana River, two of which are Federal. Funding would provide the Federal portion for the placement of beach sand to protect private and public property and preserve recreational opportunities. | Yes | Recreation, Water Quality | No | |
| South Coast | Los Angeles | San Diego | San Diego County Shoreline, California | $4,400,000 | This project investigated the feasibility of providing shore protection improvements along the shores of the City of Oceanside, San Diego County, California, in the interest of shoreline protection and storm damage reduction and related purposes. | | | No | |

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|---|---|---|---|---|---|---|---|---|---|
| South Coast | Los Angeles | San Diego | San Luis Rey River, California | $76,900,000 | The Project includes the following:<br>• Double levee, 5.4 miles long<br>• Stone protected channel with a soft bottom<br>• 1,330 feet of parapet walls at the ocean on the north and south levees<br>• Six interior drainage ponds<br>• 5-mile bike trail<br>• 247 acres of conservation lands | Yes | Recreation, Water Quality | Yes | $ 1,300,000 |
| South Coast | Los Angeles | San Diego | Solana Beach, California | $10,096,000 | A study of shoreline erosion along 8 miles of San Diego County coastline. Bluff erosion is extremely dangerous to the public, considering that portions of the bluffs have collapsed and threaten private property. | Yes | Recreation | Yes | $300,000 |
| San Joaquin River | Sacramento | San Joaquin | Stockton Metropolitan Flood Control Reimbursement, California | $33,500,000 | This project will continue reimbursement of Stockton metropolitan area flood risk management projects that were completed in 1998. | | | No | |
| San Francisco Bay | San Francisco | San Mateo, Santa Clara | San Francisquito Creek, California | $53,000,000 | The study area is located in the northern portion of Santa Clara County, and in southern San Mateo County, in northern California, about 22 miles south of San Francisco. San Francisquito Creek has an inadequate carrying capacity due to vegetation, sedimentation, land subsidence, levee settlement, and erosion. Flooding from the creek affects the cities of Menlo Park and East Palo Alto in San Mateo County, and Palo Alto in Santa Clara County. San Francisquito Creek starts at the base of Searsville Dam at Stanford University and flows into the San Francisco Bay about 2.5 miles south of the Dumbarton Bridge. As a result of record rainfall in February 1998, San Francisquito Creek overtopped its banks, affecting approximately 1,700 residential and commercial structures and causing more than $26.6 million in property damages. The study will evaluate potential improvement plans to help alleviate flooding problems, as well as address environmental degradation of the watershed. | Yes | Ecosystem | No | |

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| Hydrologic Region | USACE District | County | USACE Project Name | USACE Project Cost Share (Federal Cost Share) | Project Description | IWM Project | Type of IWM Project | Project Funded in FY 2012 | Funding Appropriated in FY 2012 |
|---|---|---|---|---|---|---|---|---|---|
| Central Coast | Los Angeles | Santa Barbara | Carpinteria Shoreline Study | $3,979,000 | This study is investigating shoreline protection and coastal storm damage reduction along the 1,200-foot stretch of shoreline at the city of Carpinteria. | | | No | |
| Central Coast | Los Angeles | Santa Barbara | Lower Mission Creek Flood Control and Restoration Project | $90,229,000 | The purpose of this project is to improve the flood flow conveyance and habitat for aquatic species of Mission Creek through the downtown area of the City of Santa Barbara. | Yes | Ecosystem | No | |
| Central Coast | Los Angeles | Santa Barbara | Santa Maria Levees, California | $59,194,000 | Project to correct deficiencies with the Santa Maria River levee in an effort to protect the residents of Santa Maria and northern Santa Barbara County from flooding. | | | Yes | $ 6,089,000 |
| San Francisco Bay | San Francisco (Design and Construct), Sacramento (Investigation) | Santa Clara | Coyote and Berryessa Creeks, California | $18,000,000 | The purpose of this project is to provide flood protection for Silicon Valley's high-tech, commercial industries, and residential areas with potential damages from a 1 percent flood exceeding $202 million. Alternatives will be selected in an environmentally sensitive way that is acceptable to the local community and that addresses sedimentation and water quality issues. | Yes | Flood Risk Management, Water Quality | Y | $ 276,000 |
| Central Coast | San Francisco | Santa Clara | Llagas Creek, California | $105,000,000 | The Project area is located in southern Santa Clara County, California, in the vicinity of the communities of Morgan Hill, San Martin, and Gilroy. Llagas Creek is the conduit to the Pajaro River and the Monterey Bay for a 104-square-mile watershed around Morgan Hill and Gilroy. The creek system is especially prone to flooding, having recorded floods in 1937, 1955, 1962, 1963, 1969, 1982 and 1997. Primarily, the project consists of channel improvements and a diversion channel providing 100-year level of flood protection to urban areas and 10-year protection to agricultural areas. | | | No | |

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|---|---|---|---|---|---|---|---|---|---|
| San Francisco Bay | San Francisco | Santa Clara | South San Francisco Shoreline, California | $500,000,000 | The study area is located along the shoreline of South San Francisco Bay, California, extending from the city of Palo Alto to city of San Leandro. A substantial portion of the Bay shoreline consists of levees that provide protection from tidal flooding for an extensive residential, commercial, and industrial area. These levees are part of an extensive system of former salt manufacturing ponds, which can be restored to vital wetland habitat that would support multiple threatened and endangered species. The last estimated value of the urban development in low-lying areas along the Bay shoreline is approximately $5.5 billion (at September 1998 price levels). The study will reexamine tidal and fluvial flooding problems, and restoration opportunities, and potential alternative solutions. | Yes | Ecosystem, Recreation, Water Quality | Yes | $ 353,000 |
| San Francisco Bay | San Francisco | Santa Clara | Upper Guadalupe River, California | $256,000,000 | The Project area is located along the upstream portion of the Guadalupe River in the city of San Jose, Santa Clara County, California. The reach of the river proposed for improvement begins 1,800 feet upstream of the Southern Pacific Railroad crossing at the edge of downtown San Jose and extends south (upstream) for about 5 miles to Blossom Hill Road. The Guadalupe River extends from the community of Alviso at the river's mouth upstream for about 21 miles, and is one of the major drainage areas in Santa Clara Valley. The recommended project includes channel widening, a bypass channel, and construction of levees and floodwalls. This upper portion provides protection consistent with the authorized and nearly completed Guadalupe Project in downtown San Jose. | | | No | |

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|---|---|---|---|---|---|---|---|---|---|
| San Francisco Bay | San Francisco | Santa Clara | Upper Penitencia Creek, California | $124,000,000 | Upper Penitencia Creek is located in the city of San Jose in Santa Clara County, California. The project is intended to reduce flood damages in San Jose and Milpitas. Alternatives under consideration for this 3.6-mile reach include a combination of floodproofing at the upstream limit, levees, floodwalls, and bypass channels. | | | Yes | $ 177,000 |
| Central Coast | San Francisco | Santa Cruz | Pajaro River at Watsonville, California | $220,000,000 | This originally authorized flood control project will address flooding from the existing Pajaro River and Salsipuedes Creek project (1949) and from Corralitos Creek. The study objective is to develop a plan that provides a 100-year level of protection on both the mainstem and tributaries. This project is limited to benefits based on the Net Economic Development, although environmental sustainability will be considered because the Pajaro River contains endangered fish species. | Yes | Ecosystem | No | |
| Central Coast | Sacramento* *Note: In the process of being transferred to the South Pacific Division – San Francisco District | Santa Cruz | San Lorenzo River, California | $25,600,000 | This is an authorized flood control levee project on the San Lorenzo River in Santa Cruz that will provide 100-year flood protection. Phase II of the project will include analyzing the dredging component and investigating the possibilities of additional floodwalls or levee raise in lieu of dredging due to the Environmental restrictions in the area. The largest recorded flood of the river inundated 410 acres, causing approximately $7.6 million in damages. The project provides flood protection to important residential and commercial areas for the 56,000 residents of Santa Cruz. | | | No | |
| Sacramento River | Sacramento | Solano | Sacramento River Bank Protection (portions of bank along Yolo Bypass) | $9,800,000 | Related to/supports Sacramento River Flood Control Project. The project would increase bank stabilization through restoration and geomorphology efforts in areas within Reclamation District 2068 in the Yolo Bypass area. | | | Yes | $ 9,800,000 |

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|---|---|---|---|---|---|---|---|---|---|
| San Francisco Bay | San Francisco | Sonoma | Petaluma River, California | $46,140,000 | The roughly 1-mile-long project extends upstream from Lynch Creek downstream to a point roughly 600 feet downstream of the Lakeville Street bridge. The project includes a concrete weir, two new pump stations, two large mitigation sites, the replacement of two vehicular bridges, one railroad bridge, and one spur line. In the central residential area of Petaluma, more than 600 structures are located within the FEMA 100-year floodplain, which was subject to catastrophic flooding from the Petaluma River in 1982, at which time $28 million in damages were incurred. The same area has flooded six times since 1982. Flood crests occur very quickly with little warning. | | | No | |
| San Joaquin River | Sacramento | Stanislaus | San Joaquin River Basins, West Stanislaus County, Orestimba Creek, California | $3,722,550 | Development of a feasibility study to finalize a flood damage reduction plan for Orestimba Creek. The proposed public safety improvements will potentially diminish the frequency and significance of damage caused by flooding in this region, increasing flood protection from its current 4-year flood level to 100-year level protection. This feasibility study will identify the Federal interest in reducing the risk of flooding from Orestimba Creek to the town of Newman, California, and surrounding agricultural land. Currently, high flows overtop the banks of Orestimba Creek, spilling onto adjacent agricultural land and eventually flowing into the town of Newman. Alternative plans include a chevron levee to protect the town of Newman and channel modifications to allow more flow through a constricted portion of the creek. | | | Yes | $ 223,000 |
| Tulare Lake | Sacramento | Tulare | San Joaquin River Basin, Frazier Creek, California | $1,500,000 | The purpose of this study is to determine Federal interest in providing flood risk management, environmental restoration, recreation, and water quality improvements on Frazier and Strathmore creeks. | Yes | Ecosystem, Water Quality, Flood Risk Management, Recreation | No | |

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|---|---|---|---|---|---|---|---|---|---|
| Tulare Lake | Sacramento | Tulare | Success Dam, Tule River, California (Dam Safety) | $500,000,000 | Success Dam is an earthen flood risk management dam on the Tule River in the southern San Joaquin Valley. USACE has downgraded its risk potential associated with dam and remediation alternatives to be determined. | Yes | Dam Safety, Irrigation, Water Supply | Yes | $12,600,000 |
| Tulare Lake | Sacramento | Tulare | Terminus Dam, Lake Kaweah, California | $8,341,000 | The purpose of this project is to provide additional flood risk management and water supply storage capacity by constructing fuse gates in the Terminus Dam spillway, thereby raising the spillway crest elevation by 21 feet. | | | Yes | $218,500 |
| Tulare Lake | Sacramento | Tulare | Tule River, California | $18,200,000 | Success Dam is an earthen flood risk management dam on the Tule River in the southern San Joaquin Valley. USACE has downgraded its risk potential associated with dam and remediation alternatives to be determined. | Yes | Water Supply, Irrigation | No | |
| Tulare Lake | Sacramento | Tulare | San Joaquin River Basin, White River and Deer Creek, California | $1,500,000 | The purpose of this study is to determine Federal interest in providing flood risk management and environmental restoration on White River, Dear Creek, and adjacent streams in the vicinity of the town Earlimart, California. | Yes | Ecosystem, Flood Risk Management | No | |
| South Coast | Los Angeles | Ventura, Santa Barbara | Matilija Dam Ecosystem Restoration | $140,000,000 | The purpose of this project is to remove Matilija Dam and to identify mitigation. | Yes | Ecosystem | No | |
| South Coast | Los Angeles | Ventura, Santa Barbara | Santa Paula Creek | | Purpose of the project is to provide flood protection to the community of Santa Paula. | | | Yes | $ 2,036,000 |
| South Coast | Los Angeles | Ventura, Santa Barbara | Ventura and Santa Barbara County Shoreline, California | $2,930,000 | The purpose of the project is to identify and quantify the pathways for near-shore sediment transport in Santa Barbara and Ventura counties, with emphasis on critical regions of shoreline erosion. | Yes | Ecosystem | No | |

# Appendix F: Beta Test Results

This appendix contains a brief summary of the results of the Beta Tests performed at the beginning of Stage 3 Information Gathering.

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## Beta Test Agency Recommendations

Valuable feedback was received from the beta test agencies. The three beta test agencies selected were San Bernardino County Department of Public Works, Santa Clara Valley Water District, and Sonoma County Water Agency. Overall, the beta test process confirmed that the proposed methodology developed for interacting with the agencies and collecting information was sound and would achieve the desired outcomes. DWR learned that information for IWM, finance, infrastructure, and project lists is more readily available than information for risk characterization.

Some significant findings from meeting with the beta test agencies include the following:

- Local agencies do not typically compute potential damage or loss of life; this translates to limited availability of loading and exposure information.
- Most agencies focus on complying with design standards without regard to the benefit-cost ratio typically used by USACE to justify funding for flood infrastructure.
- USACE reconnaissance and feasibility studies, although a good source of risk information, are infrequently developed (many were more than 20 years old).
- Local agencies may have annual damage data but not loss of life data.

Recommendations for future information gathering that the beta test agencies offered on the checklist were as follows:

- Streamline questions on Integrated Flood Management.
- Make risk questions less technical.
- Focus on location of and exposure to inundation. Which populations are inundated? Do they know they are exposed?
- Understand the responsibilities of agencies in the region to help shape follow-up questions.
- Specifically ask about Capital Improvement Plans (CIPs) and budget documents, both of which are good sources of planned projects.

DWR used the feedback from the beta test agencies to develop a training program for the teams tasked with collecting information from agencies for the statewide Stage 3 information gathering effort. The beta test results better prepared the teams to use agency resources more efficiently.

## Information Gathering Process Revisions

Overall, the beta tests confirmed that the proposed methodology and tools for the Stage 3 information gathering effort were effective and, with minor modifications, would achieve the desired outcomes. For the detailed results of the beta test specifically pertaining to information gathering, refer to the Information Gathering Beta Test technical memorandum.

## Financial Information

The breadth and varied nature of the financing and funding mechanisms of the three beta test agencies became apparent during the meetings. The open-ended questions and financial documents collected from the agencies, such as annual budget plans and/or CIP information, were determined to be sufficient for initiating a discussion and capturing the broad scope of each agency's funding process. For the detailed results of the beta test specifically pertaining to finance information gathering, refer to the Finance Information Gathering Beta Test technical memorandum.

## Risk Information

Based on the beta test results, the original approach would not accurately capture the available components of risk analysis in the state. Observations revealed that local agencies do not typically gather detailed risk information, such as potential loss of lives or projected flood depth-to-damage costs. A risk analysis performed in accordance with USACE standards on a statewide scale would not be representative of the risk information generally available from flood management agencies. After the beta test was performed, the original methodology pertaining to risk characterization was modified and simplified.

The revised methodology would look at risk as a compilation of five components—hazard, performance, exposure, vulnerability, and consequence. Information gathered for each agency would be reviewed for any data that would fall into these risk analysis categories. The overview of this effort to gather information specifically related to risk would be available via an inventory of risk data.

Additionally, as part of the revised methodology, maps that analyze flood hazard exposure for each hydrologic region were added as part of the information gathering products. After review of the available information, both in GIS and hardcopy mapping data, it was determined that the level of flood exposure could be shown in this visual and dynamic way.

For the detailed results of the beta test specifically pertaining to risk characterization, refer to the Risk Characterization Beta Test technical memorandum.

## IWM Information

Also referred to as Integrated Flood Management (IFM), Integrated Water Management (IWM) is a collection of policies, practices, and tools applied to water resources planning and management to achieve multiple objectives and enhanced outcomes. IWM information was gathered regarding planned projects, challenges and opportunities, and management actions. As a result of the beta tests, the methodology for gathering information specifically regarding IWM/IFM was refined and simplified, and now includes an additional fact sheet and pared-down interview questions.

For the detailed results of the beta test specifically pertaining to IFM/IWM, refer to the Integrated Water Management Beta Test technical memorandum.

# Appendix G: Information Gathering Meeting Materials and Tools

This appendix contains the following from the SFMP Information Gathering Process:

- Stage 3 Agency Meeting Materials
- SFMP Collected Document Processing Tools and Example Tables


G.1 Instructions for Information Gathering Template

G.2 Agency Contact Record

G.3 List of Identified Documents

G.4 Summary of Financing Strategies

G.5 List of Agency Recommendations

G.6 Fact Sheet: Integrated Flood Management

G.7 Fact Sheet: Flood Risk

G.8 Fact Sheet: Statewide Flood Management Planning Program

G.9 Sample Agency Meeting Agenda

G.10 Information Gathering Worksheet

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## G.1 Instructions for Information Gathering Template

### SFMP Information Gathering Template

**Purpose of this Information Gathering Template**

This template is to be used to capture information gathered during the Stage 3 information gathering process for the Statewide Flood Management Planning (SFMP) Program. The template is to be used to more specific information for a single agency. The information to be stored in this template includes:

(1) Agency Contact Record - Records contact information for each contact made at an agency.

(2) Existing Documents table - List of all documents collected during the information gathering process.

(3) Financing Strategies - List of Financing Strategies used by agency to fund flood management projects (capital and Operation and Maintenance)

(4) List of agency Recommendations - List of recommendations for addressing problems/issues/concerns related to flood management.

**How to Use this Template**

Step 1: Read the Instructions

Step 2: Rename "Blank Agency abbreviation, "ID Template", and date (e.g., SCV_WD_ID_Template_09-01-11.xls)

Step 3: Insert Agency Contact: Information as agency contacts are identified

Step 3: Insert Existing Documents into "Existing Document Table" as information is gathered either as part of background research or from agency in person meeting or follow-up.

Step 4: Summarize Financial Strategies used by agency from meeting minutes into "Financing Strategies" worksheet

Step 5: Summarize recommendation/issues/concerns from agencies in-person meeting into "List of Agency Recommendations" worksheet

Step 6: Spell check spreadsheet

Step 7: Submit to Agency lead for review.

Step 8: Submit to Regional Coordinator for review by regional team area specific specialists (finance, information gathering, recommendations)

**Definition of Terms Used in Worksheets**

*General Rules for Using Templates:*

*(1) All cures provides should be in complete/grammatical sentence.*

*(2) All cures should be in sentence case (first word and proper nouns capitalized) in complete sentence format with no abbreviations.*

*(3) Do not add/delete columns.*

*(4) Do not change format of column cells will be completed for use in SFMP Flood Future Report Appendices.*

The following are definitions of terms used in this template.

**Agency Contact Record**

*Agency Contact Information* - Provide the agency name (from pull down list), agency location address (street address, city, state, zip).

*Agency Contact* - Provide agency contact information (Contact Name, title, email address, phone number) and other key contact info in any contact column.

*Date* - Date of initial contact in mm/dd/yyyy format.

*Notes* - Provide any notes/comments in sentence case.

**Existing Documents Table**

*Document Number* - Document number is Agency Abbreviation (from Agency Abbreviation List) followed by capital letters in numbering (e.g., SCV_WD_1).

*Document Title* - Document title as listed on document cover page.

*Document Description* - A one sentence description summarizing the document contents.

*Date Document Published* - Date document published in mm/dd/yyyy format. If report provides only month and year (with no date) then use mm/01/yyyy format. If title provides only year use 01/01/yyyy format.

*Information Date Format* - Select "ID" to identify category is correct format. If "Other" is the format, please insert description of format.

*Category of Information in Document* - Select "ID" to identify category of information contained within document. Multiple categories may be selected.

*Filename* - Use original agency filename if it describes document otherwise rename with agency abbreviation followed by year published and document description (e.g., SCV_WD_1_2005_Final_EIR.pdf). Move words use no special characters except underscores ("_") as the files will not work well in Linux/Unix.

*Agency Name* - Select agency name from pull down list.

*County* - Select County name from pull down list.

*Hydrologic Region* - Select Region from pull down list.

*Information Source* - Insert source of information (i.e., agency website, in-person meeting, follow-up contact with agency, or describe other).

*Date Collected* - Insert date (mm/dd/yyyy) study/information was collected in mm/dd/yyyy format.

*Location Description* - Insert description of study/report location, if available.

*Comments* - Provide any notes/comments in sentence case.

**Financing Strategies**

*Agency Name* - Select Agency name from pull-down list.

*County* - Select County name from pull-down list.

*Hydrologic Region* - Select Region from pull-down list.

*Type of Financing* - Insert type of financing used by local agency as described by agency. Financing types could include local funding (parcel tax, local development fees, property tax, etc.), federal funding (USACE, NRCS, FEMA, USBR, ARRA), other state funding (propositions, subvention program, etc), other.

*Timeframe* - Timeframe of funding, if available. Timeframe may be a specific date, timeframe or described in sentence format.

**List of Agency Recommendations**

*Agency Name* - Select agency name from pull down list.

*Agency County* - Select County name from pull-down list.

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## G.2 Agency Contact Record

| Agency Information | | | | | | Agency Contact | | | | | Date of Contact | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agency Name | Street Address | City | State | Zip | County | Name | Title | Email | Phone | Key Contact | | |
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## G.3 List of Identified Documents

| Document No | Document Title | Document Description | Date Document Published | Information/Data Format | | | | | | | | Category of Information in Document | | | | Filename | Agency Name | County | Hydrologic Region | Information Source | Date Collected | Location Description | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Electronic | | | | | | | | | | | | | | | | | | | |
| | | | | GIS | Word | Excel | PDF | CADD | Hard Copy | Other | Other (Describe) | Infrastructure | IFM/FM Projects | Financial | Risk | | | | | | | | |
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## G.4 Summary of Financing Strategies

| Agency Name | County | Hydrologic Region | Type of Financing | Timeframe |
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## G.5 List of Agency Recommendations

| Agency Name | County | Hydrologic Region | Area of Concern |
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## G.6 Fact Sheet: Integrated Flood Management

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# Integrated Flood Management

**California promotes an integrated approach to statewide flood management, which includes improving public safety, reducing flood damages, enhancing environmental stewardship and supporting water supply.**

**Integrated Flood Management** (IFM) is an approach to dealing with flood risk that recognizes the connection of flood management actions to water resources management, land use planning, environmental stewardship and sustainability. IFM also recognizes the importance of evaluating opportunities and potential impacts from a system perspective, and the importance of coordinating across geographic and agency boundaries.

IFM uses various techniques to manage flooding, including structural projects (such as levees), nonstructural measures (such as land use practices), and natural watershed functions. Depending on the characteristics of individual watersheds, various resource management strategies may be used, such as: agricultural land stewardship, conjunctive water management, conveyance, ecosystem restoration, forest management, land use planning and management, surface storage, system reoperations, urban runoff management and watershed management.

(Detailed information on these resource management strategies is available in the *California Water Plan Update 2009*, www.waterplan.water.ca.gov)

**A Look Back**

Flood management practices traditionally focused on reducing the chance of flooding and flood damages through physical measures intended to store floodwaters and to quickly convey potential floodwaters away from areas to be protected. Although this approach can reduce the intensity and frequency of flooding, it can also limit the floodplain's natural function and have other unintended consequences.

**Natural Watershed Features Assist Flood Management**

In recent years, flood managers have recognized the potential for natural watershed features to reduce the intensity or duration of flooding. Natural watershed features include: undeveloped floodplains that can store and slowly release floodwaters and wetlands acting as sponges, soaking up floodwaters, filtering runoff, and providing opportunities for infiltration to groundwater. Natural watershed features also include healthy forests, meadows, and other open spaces that can slow runoff during smaller flood events, reducing peak flows, mudslides, and sediment loads in streams.

*(continued)*

FloodSAFE CALIFORNIA — PUBLIC SAFETY — ENVIRONMENTAL STEWARDSHIP — ECONOMIC STABILITY

Feather River Setback Levee
*(photo: Yuba County Water Agency)*

## FloodSAFE:

*The Department of Water Resources launched FloodSAFE in 2006 to address the increasing flood risks throughout California. FloodSAFE is a multi-faceted initiative designed to improve flood management in the state, using a system-wide approach while also completing our regional projects, and enhancing DWR's core flood management programs already in place. FloodSAFE has five primary goals:*

- *Reduce the chance of flooding*
- *Reduce the consequences of flooding*
- *Sustain economic growth*
- *Protect and enhance ecosystems*
- *Promote sustainability of the flood management system*

*For more information, visit www.water.ca.gov/floodsafe*

*(continued)*

## Example of Integrated Flood Management

**Lower Feather River Corridor Management Plan and Three Rivers Levee Improvement Authority**

The Lower Feather River Corridor Management Plan – a pilot for this approach—is being developed for a 20-mile reach of the Feather River between Yuba City and the Sutter Bypass. Levee failures in 1986 and 1997 inundated this area, causing approximately $600 million in damages and several deaths.

The Lower Feather River Corridor Management Plan includes a strategy for future management and maintenance of flood protection facilities, conveyance channels, floodplains and uplands.

The Three Rivers Levee Improvement Authority's (TRLIA) Feather River Setback Levee is a component of that corridor management strategy.

Yuba County and Reclamation District 784 established TRLIA in 2004 as a joint-powers agency, with the goal of increasing flood protection in the region. TRLIA's levee program includes the 29-mile levee system surrounding the south Yuba County communities of Linda, Arboga, Olivehurst, and Plumas Lake and includes the Bear River, Feather River, Yuba River, and the Western Pacific Interceptor Canal.

Approximately 6 miles in length, the Feather River Setback Levee has resulted in about 1,600 acres of expanded floodway and habitat along the Feather River. Regionally, the setback is expected to lower water levels by more than 1.5 feet during large flood events, easing pressure on both the Yuba and Feather River Levees and providing regional flood protection benefits to South Yuba County as well as the cities of Marysville and Yuba, but without transferring flood risk to downstream locations.

For more information, contact us at: **sfmp@water.ca.gov** or visit **www.water.ca.gov/sfmp**

FloodSAFE CALIFORNIA

PUBLIC SAFETY ENVIRONMENTAL STEWARDSHIP ECONOMIC STABILITY

## G.7 Fact Sheet: Flood Risk

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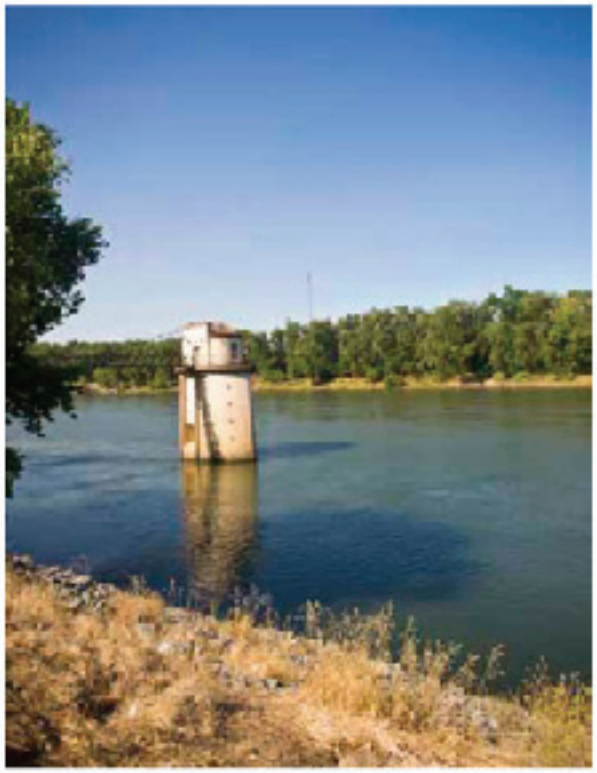
# Flood Risk
## and the Statewide Flood Management Planning Program

FLOOD RISK ASSESSMENT



The California Department of Water Resources (DWR) defines flood risk as the long-term average consequences of flood inundation, including both economic and life-safety consequences.

### Flood risk components

- **Flood hazard**: Various types of flooding that can cause damage or harm
- **Loading**: A description of the likelihood that differing size water flows will occur at a specific location
- **Exposure**: A relationship between naturally occurring flows and potential consequences
- **Consequences**: Undesirable outcomes from floods

### Characterizing flood risk in California

The Statewide Flood Management Planning Program is gathering existing studies and reports from throughout the state that describe and quantify the different components that represent flood risk.

The Statewide Flood Management Planning Program will use this information to produce a report titled *Flood Future: Recommendations for Managing California's Flood Risk (Flood Future Report)*. The *Flood Future Report* will provide the first characterization of statewide flood risk along with the challenges, opportunities and recommendations for improving and financing integrated flood management. A public review draft of the Flood Future Report will be available in 2012.

*(continued)*

FloodSAFE CALIFORNIA

PUBLIC SAFETY ENVIRONMENTAL STEWARDSHIP ECONOMIC STABILITY

**The Statewide Flood Management Planning Program is led by the California Department of Water Resources through the FloodSAFE Initiative and the Division of Integrated Statewide Water Management; in collaboration with local, State and federal agencies and tribes throughout California.**

**The Statewide Flood Management Planning Program will help guide the State's decisions, and inform federal decisions, about policies and financial investments related to integrated flood management throughout California.**

*(continued)*

In order to characterize the potential vulnerabilities and consequences of flooding throughout California, the *Flood Future Report* will illustrate where flood hazards exist, and highlight where people and property are located within floodplains.

Early information gathering efforts indicate that complete flood risk information is not available for most regions in the state. Therefore, the Statewide Flood Management Planning Program will overlay the best available maps that show the areas that would be inundated by floods, on maps of California's population and property. These combined maps will identify the populations and property subject to damage from a 100-year flood and a 500-year flood.

While this information does not provide a complete description of flood risk, it does allow for comparisons of the relative concentrations of population and property that are located within floodplains throughout California.

For areas of California where information is available on all components of flood risk, the *Flood Future Report* will present the long-term average consequences (economic and life safety) of flood inundation.

For more information, visit: **www.water.ca.gov/sfmp**

## FloodSAFE:

*The Department of Water Resources launched FloodSAFE in 2006 to address the increasing flood risks throughout California. FloodSAFE is a multi-faceted initiative designed to improve flood management in the state using a system wide approach while also carrying out regional projects and encouraging DWR's core flood management programs already in place. FloodSAFE has five primary goals:*

- *Reduce the chance of flooding*
- *Reduce the consequences of flooding*
- *Sustain economic growth*
- *Protect and enhance ecosystems*
- *Promote sustainability of the flood management system*

*For more information, visit* **www.water.ca.gov/floodsafe**

FloodSAFE CALIFORNIA

PUBLIC SAFETY ENVIRONMENTAL STEWARDSHIP ECONOMIC STABILITY

## G.8 Fact Sheet: Statewide Flood Management Planning Program

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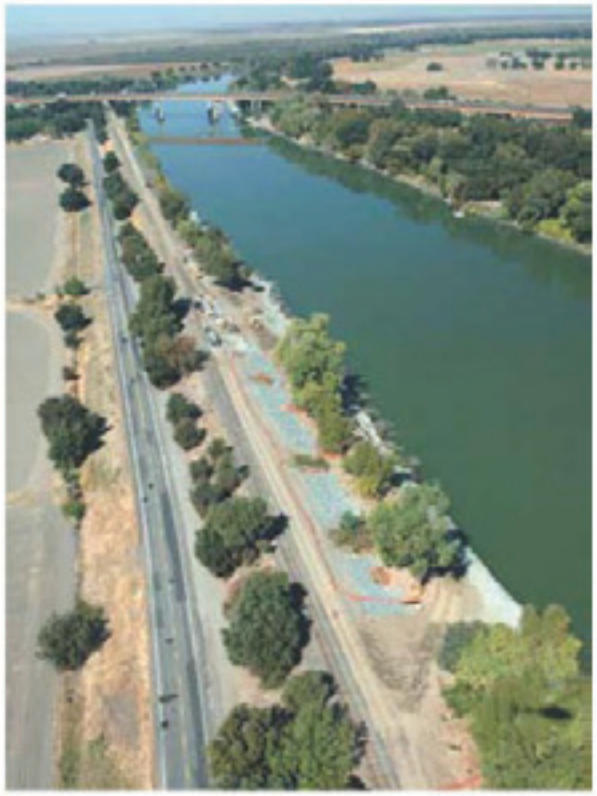
# Statewide Flood Management Planning Program

FLOOD SYSTEM INVESTMENT

The Statewide Flood Management Planning Program is led by the California Department of Water Resources (DWR) through the FloodSAFE Initiative and the Division of Integrated Statewide Water Management in collaboration with Federal, Tribal, State and local governments throughout California.

The SFMP Program was developed under the FloodSAFE Initiative to expand the focus of California's flood management planning statewide. The purpose of the SFMP Program is to make recommendations to guide State and Federal flood management policies and investments in the coming decades by:

- Promoting understanding of flood risks in California
- Garnering active support for partnerships at the Federal, State and local levels
- Coordinating with other California Department of Water Resources (DWR) planning efforts
- Identifying strategies and feasible next steps in integrated flood management (IFM)
- Informing local flood management organizations of IFM strategies
- Developing recommendations to improve integrated flood management throughout the state



The Department of Water Resources is collaborating with the U.S. Army Corps of Engineers to produce the Flood Future Report, which will help guide Federal and State decisions about policies and financial investments related to integrated flood management throughout California.

**California promotes an integrated approach to statewide flood management, which includes improving public safety, reducing flood damages, enhancing environmental stewardship and improving water supply reliability.**

STATEWIDE FLOOD MANAGEMENT PLANNING PROGRAM

PUBLIC SAFETY ENVIRONMENTAL STEWARDSHIP ECONOMIC STABILITY

US Army Corps of Engineers

*(continued)*

## Flood Future: Recommendations for Managing California's Flood Risk

The Statewide Flood Management Planning Program will release a report in 2012 titled *Flood Future: Recommendations for Managing California's Flood Risk (Flood Future Report).*

The *Flood Future Report* is an initial step to identifying flood management issues statewide and developing recommendations to help address these issues. The *Flood Future Report* will explore financing, institutional, legislative and policy strategies to help chart a path forward to meet current and future challenges.

DWR used a three step process to develop the *Flood Future Report*:

1. Collect information from Federal, State and local agencies to identify current and future exposure to flood hazards; and identify where information gaps exist.
2. Identify current and planned flood management projects throughout California, and identify strategies to improve integrated flood management.
3. Summarize key findings from the first two steps. Make recommendations for how Federal and State government agencies can assist local implementation of integrated flood management improvements.

## Statewide Flood Management Planning and the California Water Plan

Statewide flood management is being addressed in the 2013 California Water Plan Flood Caucus, whose members include floodplain managers, local maintaining agencies and other organizations deeply involved in flood management.

The California Water Plan provides a collaborative planning framework for elected officials, agencies, Tribes, water and resource managers, businesses, academia, stakeholders, and the public to develop findings and recommendations and make informed decisions for California's water future. The California Water Plan evaluates different combinations of regional and statewide resource management strategies to reduce water demand, increase water supply, reduce flood risk, improve water quality, and enhance environmental and resource stewardship.

For more information, contact us at: **sfmp@water.ca.gov** or visit **www.water.ca.gov/sfmp**

*January 2012*

## About FloodSAFE

*The Department of Water Resources launched FloodSAFE in 2006 to address the increasing flood risks throughout California. FloodSAFE is a multi-faceted initiative designed to improve flood management in the State, using a system-wide approach while also carrying out regional projects, and enhancing DWR's core flood management program already in place. FloodSAFE has five primary goals:*

- *Reduce the chance of flooding*
- *Reduce the consequences of flooding*
- *Sustain economic growth*
- *Protect and enhance ecosystems*
- *Promote sustainability of the flood management system*

STATEWIDE FLOOD MANAGEMENT PLANNING PROGRAM

PUBLIC SAFETY ENVIRONMENTAL STEWARDSHIP ECONOMIC STABILITY

US Army Corps of Engineers

## G.9 Sample Agency Meeting Agenda

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# Napa County SFMP Agenda

September 15, 2011 1:00 p.m.
Flood Control District Office, 804 First Street, Napa, CA

*Session Objectives:*

1. Provide participants with an overview of Project Goals and Information Gathering
2. Gather essential information for use in developing the Flood Future report
3. Receive Agency Recommendations

| # | MINUTES | ITEM |
|---|---|---|
| 1. | 10-15 | Welcome and Greetings, Introductions, Agenda Review |
| 2. | 10 | Overview<br>• Meeting Purpose<br>• Project Purpose<br>• Flood Future Report |
| 3. | 15-30 | Tell us more about your Agency –<br>1. Role in the overall Water Community - Region<br>2. Roles associated with Flood Risk<br>3. Roles associated with IRWM |
| 4. | 15-30 | Question Checklist<br>• Overview of Full Checklist<br>• Overview of Materials Already Collected<br>- Stream Management Master Plan (SMMP) program documents and EIR<br>- Individual Projects:<br>o Arroyo de la Laguna; Arroyo de las Positas; etc. |
| 5. | 60-120 | Checklist Walkthrough<br>• Compile information During the Session<br>• Determine Next Steps for Information Not Available During the Session |
| 6. | 15-25 | Wrap-Up, Action Items, Next Steps, Last thoughts |
| 7. | | Adjourn |

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## G.10 Information Gathering Worksheet

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# INFORMATION GATHERING WORKSHEET

| TOPIC | QUESTIONS |
|---|---|
| **Introductory Information:** | Point of Contact<br>AGENCY NAME:<br>AGENCY REPRESENTATIVE:<br>DATE:<br><br>1. Who is the Best Point of Contact for planned project, risk, and Integrated Flood Management (IRWM Planning)?<br><br>Roles and Responsibilities<br><br>2a. What is the Role/Responsibility of your agency for flood management within the county?<br>2b. Do you know of any other flood management agencies in your county that we should contact?<br><br>Agency Priorities, Opportunities, and Challenges<br><br>3. Considering the State's role in flood management, what priorities, opportunities, and challenges related to flood management do you see for this region (both in the next 10 years and for the long-tem [next 50 years])? |
| **General Information** | Flood Infrastructure Inventory<br><br>4. We are trying to identify the major flood management infrastructure in your area. Do you have (or know of) other information about major flood management infrastructure in your area that we have not mentioned in the information we brought with us? We are primarily looking for descriptions, locations (e.g., GIS / maps), and an assessment of their level of readiness to perform.<br>5. Please describe any procedures that you need us to take to obtain additional information/data from your agency.<br><br>Communication and Engagement<br><br>6a. Does your agency work with FEMA to promote the purchase of flood insurance?<br>6b. Does your agency conduct public outreach programs about flood risk or flood management programs? What is the best way to gather more information about that? |
| **Risk Characterization Information** | Risk Study<br><br>7. In your area, where is flooding a concern (i.e., when you have a flood who or what gets or could get flooded, without regard to depth [gets wet])? |

| TOPIC | QUESTIONS |
|---|---|
| | Risk Study<br><br>8. Do you have any studies/ reports that document the flood inundation concerns in your area (i.e., how do you know who gets flooded - what Reports/Studies/Information/FEMA claims/ USACE reports do you have)? |
| **Risk Characterization Information** | Loading Information<br><br>9. Do you have damage information or information for the people/property that are at risk?<br><br>Exposure Information<br><br>10. Can you describe the reliability/performance of your flood infrastructure system? (Do you know of any underperforming levees; undersized culverts; low bridge decks; other CIP identified issues?) What are the opportunities to enhance your system? |
| **IFM Information** | Flood Management/ Integrated Flood Management (FM/IFM) -- general questions<br><br>11. DWR defines Integrated Flood Management as an approach to dealing with flood risk that recognizes the:<br>• Interconnection of flood management actions within broader water resources management and land use planning<br>• Value of coordinating across geographic and agency boundaries<br>• Need to evaluate opportunities and potential impacts from a system perspective<br>• Integration of environmental stewardship; and the promotion of sustainability<br><br>What is your definition of IFM? [Discuss any differences between the DWR definition and the organization's definition]<br><br>12. Are you currently incorporating IFM in your planning process? And if not, why? What actions and issues do you expect to see related to FM/IFM in your area in the short-term (10-years) and long-term?<br><br>FM/IFM – Planned/Potential Projects<br><br>13. Describe any planned or potential FM or IFM projects in your region/watershed. [Try to get information, documents, or Web links that include: project name, responsible agencies, partnering agencies, type of flood hazard, purposes, location, status, brief description, related studies, cost/financing information, format of information, point of contact, in existing/being updated IRWM Plan (Yes/No)?] |

| TOPIC | QUESTIONS |
|---|---|
| **IFM Information** | FM/IFM -- existing/ongoing Studies related to FM/IFM<br><br>14. Describe any existing or ongoing FM or IFM studies or investigations in your region/watershed that were not included in your answer to #12.<br>[For existing studies, try to get documents and/or Web links; For ongoing studies, try to get information, documents, or Web links that include: scope, schedule, point of contact]<br><br>Integrated Regional Water Management (IRWM) Planning General<br><br>Available information on your region's IRWM Plan has been reviewed.<br>15a. What will your IRWM Plan include related to FM/IFM?<br>[such as: other FM/IFM related information/policies/ institutional arrangements, revised prioritization process, other related items that are not included in the existing IRWM Plan]<br>15b. How are you coordinating with neighborhood flood management agencies?<br>15c. What materials are available related to coordination and/or institutional arrangements?<br><br>IRWM Planning -- Planned/Potential Projects<br><br>16. Based on your understanding of IFM, are there planned/potential projects in your region/watershed that should be considered in this effort?<br>Types of projects include:<br>• Open space, habitat, ecosystem restoration<br>• Groundwater recharge, conjunctive use |
| **Organizational/ Governance** | Financial Information<br><br>17. Please describe any relevant information about how past, present, and future FM projects have been or will be financed in your region. |
| **What Else?** | 18. Can you think of any other information you think would be important for us to be aware of as we prepare our Flood Future Report? |

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# Appendix H: Glossary

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# Appendix H: Glossary

| | |
|---|---|
| 2-year event | 50 percent chance of exceedance in a given year |
| 20-year event | 5 percent chance of exceedance in a given year |
| 50-year event | 2 percent chance of exceedance in a given year |
| 100-year event | (also known as a base flood) 1 percent chance of exceedance in a given year |
| 200-year event | 0.5 percent chance of exceedance in a given year |
| 500-year event | 0.2 percent chance of exceedance in a given year |
| A-Zone | The A-zone is an area of special flood hazard without water surface elevations determined. Flood insurance is mandatory in areas with a 1 percent annual chance of flooding. |
| Actions | Informed by tools and guided by plans, actions include activities that fund, manage, and oversee implementation of the projects. Actions also include fostering innovation and developing agency alignment to improve flood management policies, planning, governance, and investments. Actions based on IWM principles and thorough planning efforts will provide the most benefit to Californians. |
| Alluvial Fan Flooding | Flows of shallow depth and high velocity, with sediment transport, along uncertain flow paths on the surface and at the toe of alluvial fans. Typically caused by localized rainstorms, often with snowmelt. |
| Atmospheric River | A weather pattern that forms a narrow corridor of concentrated moisture in the atmosphere that drops torrential rains as it passes over land. |
| Base Flood Elevation | The elevation of surface water resulting from a flood that has a 1 percent chance of equaling or exceeding that level in any given year. The base flood elevation is shown on Flood Insurance Rate Maps for zones AE, AH, A1-A30, AR, AR/A, AR/AE, AR/A1–A30, AR/AH, AR/AO, V1–V30, and VE. |
| Benefit-to-Cost (B/C) Analysis | The B/C analysis is a formalized procedure for estimating the benefits that a project is expected to generate and the costs necessary to produce the project, and then comparing project alternatives. When planning for flood protection, there will be construction and implementation costs, as well as flood risk reduction benefits. |
| California Data Exchange Center (CDEC) | The CDEC provides a centralized location to store and process real-time hydrologic information gathered from different contributors statewide. |
| California Water Plan (CWP) | The CWP provides a collaborative planning framework for elected officials, agencies, tribes, water and resource managers, businesses, academia, stakeholders, and the public to develop findings and recommendations and make informed decisions for California's water future. The plan, updated every 5 years, presents the status and trends of California's water-dependent natural resources; water supplies; and agricultural, urban, and environmental water demands for a range of plausible future scenarios. The CWP also evaluates different combinations of regional and statewide resource management strategies to reduce water demand, increase water supply, reduce flood risk, improve water quality, and enhance environmental and resource stewardship. |

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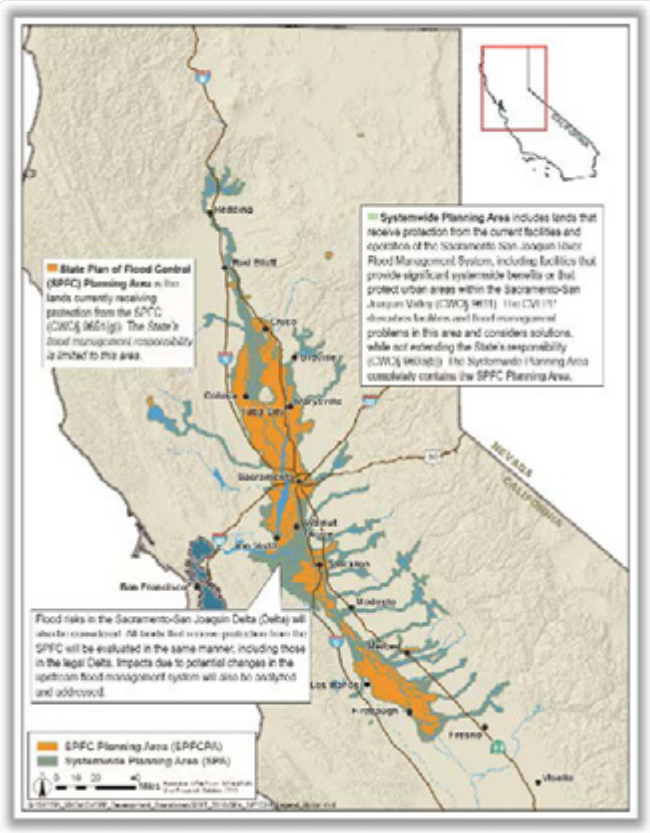
| Capacity Exceedance | Capacity exceedance implies exceedance of the capacity of a water conveyance, storage facility, or damage-reduction measure. This includes levee or reservoir capacity exceeded before overtopping, channel capacity exceedance, or rise of water above the level of raised structures. |
| Central Valley Flood Management Planning (CVFMP) Program | CVFMP is one program within FloodSAFE California, a multi-year initiative led and managed by the California Department of Water Resources. Primary products of the CVFMP Program are the State Plan of Flood Control Descriptive Document, the State Plan of Flood Control History Document, the Flood Control System Status Report, and the Central Valley Flood Protection Plan. |
| Central Valley Flood Protection Plan (CVFPP) | The CVFPP is a State plan that will describe the challenges, opportunities, and a vision for improving flood management in the context of Integrated Water Management in the Central Valley. The CVFPP will document the current and future risks associated with flooding and recommend improvements to the Federal-State flood protection system to reduce the occurrence of major flooding and the consequence of flood damage that could result. The plan was submitted to the Central Valley Flood Protection Board in January 2012 for adoption by July and will be updated every 5 years. The planning area for the CVFPP is shown below. |



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| Central Valley Flood Protection Plan (CVFPP) Floodplain | The floodplains used for the SFMP risk characterization within portions the Central Valley are the CVFPP No Action depth grid floodplains with the addition of the flood bypasses. SFMP received the draft CVFPP floodplains on October 4, 2011. The CVFPP floodplains were based on the floodplains of the *Sacramento and San Joaquin River Basins Comprehensive Study* (USACE, 2002) and modified by the CVFPP to reflect current hydrologic, hydraulic, and geotechnical information. For the SFMP analysis, the Yolo, East Side, Upper Sacramento, Mariposa, Sutter, and Tisdale bypasses were added to the CVFPP floodplains. |
| Coastal Flooding | Inundation at locations normally above the level of high tide. Often caused by storm surges occurring with high tides. Impacts include property damage and beach erosion. |
| Community | A political entity that has the authority to adopt and enforce floodplain ordinances for the area under its jurisdiction. |
| Consequences | Consequences are the quantitative measures of loss, such as direct tangible monetary loss or number of lives lost, when water inundates the people and property exposed. |
| Critical Facilities | Essential, high potential loss, lifeline, and transportation facilities, as defined by HAZUS-point shapefiles |
| Debris Flow Flooding | Flows made up of water, liquefied mud, and debris. Can form and accelerate quickly, reach high velocities, and travel great distances. Commonly caused by heavy localized rainfall on hillsides denuded of vegetation. |
| Economic Risk | Economic risk is the likelihood of flood damage to an identified area under a given climate and land use condition. |
| Engineered Structure Failure Flooding | Flooding as a result of dam failure or levee failure presents the potential of catastrophic impact, depending on amount of water impounded and location of populated areas downstream. |
| Essential Facilities | Care facilities, emergency centers, fire stations, police stations, and schools, as defined by HAZUS-point shapefiles. |
| Expected Annual Damage (EAD) | EAD is the value that measures the severity of flood loss in any given year. EAD does not mean that this amount of damage will occur in any particular year, but rather that over a long period, the average damages will tend to approach that amount. |
| Exposure | Exposure is a description of who or what is in harm's way. |
| Fetch | The distance along open water or land over which the wind blows, or the distance waves can traverse unobstructed. |
| Flash Flooding | Quickly forming floods with high-velocity flows. Often caused by stationary or slow-moving storms. Typically occurs on steep slopes and impermeable surfaces, and in areas adjacent to local streams and creeks. |

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| Flood Emergency Response Information System (FERIS) | FERIS is a geospatial information system that allows for integration of existing California Data Exchange Center (CDEC) systems with real-time data collection and data exchange. |
| Flood Hazard | The Federal Emergency Management Agency defines a flood hazard as any flood event or condition with the potential to cause fatalities, injuries, property damage, infrastructure damage, agricultural loss, environmental damage, business interruption, or other loss. |
| Flood Insurance Rate Map (FIRM) | A FIRM is the official map of a community on which the Federal Emergency Management Agency has delineated the Special Flood Hazard Areas, the Base Flood Elevations, and the risk premium zones applicable to the community. |
| Flood Management | See *flood risk management*. Generally, the terms *flood management* and *flood risk management* are used interchangeably throughout the Flood Future Report. |
| Flood Risk | Flood risk is the likelihood of consequence of inundation within an identified area, given a specified climate condition, land use condition, and flood management system (existing or planned) in place. The consequence may be direct or indirect economic cost, loss of life, environmental impact, or other specified measure of flood effect. Flood risk is a function of the following components:<br>• Loading, which is the frequency and magnitude of flooding<br>• Performance of flood management measures<br>• Exposure and vulnerability, which are the relationship between the flood hazard (rising or flowing water) and its effect on life loss, property, and/or environmental resources<br>• Consequence<br>Therefore, flood management actions may reduce risk by changing loading, performance, exposure, vulnerability, or consequence. |
| Flood Risk Management | Flood risk management seeks to reduce flood risks by managing the floodwaters to reduce the probability of flooding (including by levees and dams) and by managing the floodplains to reduce the consequences of flooding. Flood risk management requires integrating and synchronizing programs at various levels of government designed to reduce flood risk.<br>Source: USACE, Institute for Water Resources, a dynamic resource at http://nfrmp.us/frm_terminology.cfm#def17 (accessed March 11, 2013). |
| Floodplain | The extent of the flood hazard for a 100-year (1 percent chance of exceedance in a given year) or 500-year (0.2 percent chance of exceedance in a given year) event, as determined by CVFPP, FEMA, or USACE. |

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| FloodSAFE California | FloodSAFE California refers to the California Department of Water Resources multi-faceted initiative launched in 2006 to improve public safety through flood management in the context of Integrated Water Management and to reduce potential flood damages in areas of the state with the highest risk. Although led at the State level and initially funded by bond money from Propositions 1E and 84, FloodSAFE implementation relies on the cooperation and assistance of Federal partners, Tribal entities, local sponsors, and other stakeholders. The FloodSAFE vision is a sustainable system of flood management with an IWM approach and emergency response throughout California that improves public safety, protects and enhances environmental and cultural resources, and supports economic growth by reducing the probability of destructive floods, promoting beneficial floodplain processes, and lowering the damages caused by flooding. |
| Hazard Mitigation Plan (HMP) | A community's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage is described in an HMP. Results are accomplished through hazard mitigation, which is any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards. |
| Hazards United States (HAZUS) – Federal Emergency Management Agency (FEMA) | FEMA has developed this Geographic Information System-based U.S. multihazard assessment software, which contains a Flood Loss Estimation Model with flood hazard analysis and flood loss estimation modules for riverine and coastal analyses. The flood hazard analysis module uses characteristics such as frequency, discharge, and ground elevation to estimate flood depth, flood elevation, and flow velocity. |
| High Potential Loss Facility | Facilities such as dams and hazardous material sites, as defined by HAZUS-point shapefiles. |
| Hydrologic Engineering Center-Flood Damage Analysis (HEC-FDA) | The U.S. Army Corps of Engineers, Hydrologic Engineering Center (HEC) Flood Damage Analysis (FDA) model is designed to perform risk analysis as part of a flood risk study. The approach explicitly incorporates descriptions of uncertainty of key parameters and functions into project benefit and performance analyses. |
| Hydrologic Unit Code 8 (HUC8) | A Hydrologic Unit Code 8 is a watershed address consisting of a name and a number (for example, Lower James watershed, 02080206). The 8-digit number is a Hydrologic Unit Code or HUC. The Hydrologic Unit system is a standardized watershed classification system developed by the U.S. Geological Survey in the mid-1970s. Hydrologic units are watershed boundaries organized in a nested hierarchy by size. They range in size from regions to the smaller cataloging units, which are roughly equivalent to local watersheds. |
| Impact Area | Impact area is a term used for convenience to describe a geographic area for which risk is assessed. |
| Improvement Project | A Project that will improve or add facilities to the State Plan of Flood Control to increase levels of flood protection for urban areas. Funding for improvement projects is authorized by California Public Resources Code § 5096.821(b). |

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| Integrated Regional Water Management (IRWM) | IRWM promotes the coordinated development and management of water, land, and related resources to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems. |
| Integrated Water Management (IWM) | IWM is a strategic approach to planning and implementation that combines specific flood management, water supply, and ecosystem actions to deliver multiple benefits. IWM relies on blending knowledge from a variety of disciplines, including engineering, economics, environmental sciences, public policy, and public information. This approach also promotes system flexibility and resiliency to accommodate changing conditions such as regional preferences, ecosystem needs, climate change, flood or drought events, and financing capabilities. |
| Life-Safety Risk | Life-safety risk represents the number of lives in jeopardy in an identified portion of the state, considering a given climate and land use condition, with a specified plan of flood management in place. |
| Loading | In the context of flood risk, loading describes the likelihood of occurrence of conditions that lead to loss of life or damage to property if the conditions are not controlled or the consequence is not managed. Loading commonly is described with a discharge-frequency function, which identifies the probability that discharge at a specified location will exceed a specified value. |
| Local Maintaining Agency (LMA) | LMAs include reclamation districts, State maintaining agencies, improvement districts, and individual districts like American River Flood Control District or Lower San Joaquin Levee District. |
| Long-Term Average (or Expected) Annual Inundation Damage | See Expected Annual Damage (EAD). |
| Maintenance and Inspection | Actions required for the proper care and efficient operation of various project elements. These actions may be combined or separated, as best suits the particular project. The guidance for proper maintenance and inspection are contained in ER 1130-2-303. Adaptations needed to satisfy conditions not covered in the ER are encouraged. Outlines of the maintenance and inspection records are be maintained and available for Government inspection. Government inspections will be performed in consultation with the project's sponsor. (Source: ER 1110-2-401) |
| Management Action | A management action is a specific structural or nonstructural strategy, action, or tactic that contributes to stated goals and addresses identified problems. Management actions could range from potential policy or institutional changes to operational and physical changes to the flood management system. Management actions are broad (not location-specific), and they vary in their level of detail. |

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| Modification | Project modifications include changes in project operation, changes in real estate interests, the physical change of a project feature, addition of project features, or changes in the purposes of a project. (Source ER 1165-2-119) |
| National Flood Insurance Program (NFIP) | The NFIP is a Federal program created by the U.S. Congress to mitigate future flood losses nationwide. The NFIP requires local communities to enforce building and zoning ordinances in exchange for access to affordable, Federally backed, flood insurance protection for property owners. |
| Operation | Actions that are necessary for the safe and efficient functioning of a project to produce the benefits set forth in the project authorization. The operational requirements for nonreservoir projects are to be presented as operation plans covering essentially the who, what, where, when, and how of the various project operations. An outline of operation records is to be maintained and available for inspection. The operation of reservoirs, covered in water control manuals shall be separate from this operation and maintenance manual. (Source: ER 1110-2-401) |
| Operation, Maintenance, Repair, Rehabilitation, and Replacement (OMRR&R) | For Federally funded projects the definition of operation and maintenance (O&M) includes the local entity's financial obligation to operate, maintain, repair, rehabilitate, and replace (OMRR&R) the implemented project. OMRR&R is a non-Federal responsibility when local, regional and/or State entities partner on a Federal project. References to O&M provided in the Flood Future Report include OMRR&R responsibilities when the project is a Federal/non-Federal partnership. |
| Performance | Performance refers to the effectiveness of flood or floodplain management measures. |
| Plans | Plans utilize information provided by tools, as well as input from stakeholders to guide the development of the flood management strategies. Plans take into account near- and long-term actions, as well as any additional considerations, such as multiple benefits, environmental concerns, overall water management, and climate change, to formulate long-lasting resilient strategies. Plans include identifying and evaluating possible multibenefit projects and the most effective means of implementing projects using an integrated, collaborative approach. |
| Project Management Plan | A project management plan defines how a project is executed, monitored, and controlled. It is used to define the approach, scope, and delivery of a project. |
| Public Resources Code Section 75003.5 | The people of California further find and declare that the growth in population of the State and the impacts of climate change pose significant challenges. These challenges must be addressed through careful planning and through improvements in land use and water management that both reduce contributions to global warming and improve the adaptability of our water and flood control systems. Improvements include better integration of water supply, water quality, flood control and ecosystem protection, as well greater water use efficiency and conservation to reduce energy consumption. |

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| Public Resources Code Section 75032(a) | Public Resources Code Section 75032(a) provides funds for:<br>The inspection and evaluation of the integrity and capability of existing flood control project facilities and the development of an economically viable flood control rehabilitation plan. |
| Reconstruction | Reconstruction consists of addressing the major performance deficiencies caused by a long-term degradation of the foundation, construction materials, and engineering systems that have exceeded their expected service lives and the resulting inability of the project to perform its authorized project functions. (Source: USACE, Program Guidance Letter on Reconstruction, August 16, 2005, http://planning.usace.army.mil/toolbox/library/MemosandLetters/reconstruction.pdf) |
| Rehabilitation | Rehabilitation refers to a set of activities necessary to bring a deteriorated project back to its original condition. (Source: ER 1110-2-401) |
| Repair | Repair refers to those activities of a routine nature that maintain the project in a well kept condition. (Source: ER 1110-2-401) |
| Replacement | Replacement covers those activities taken when a worn-out element or portion of a project is replaced. (Source: ER 1110-2-401) |
| Residual Risk | Residual risk is the likelihood of damage or other adverse consequence remaining after flood management actions are taken. |
| Results | Robust tools, thorough planning, and integrated actions deliver results that provide value to California's residents, environment, and economy. Results are tracked using performance measures and sustainability indicators that help improve investment performance and increase flood management benefits. |
| Severe Repetitive Loss (SRL) | Any NFIP-insured residential property that has met at least one of the following paid flood loss criteria since 1978, regardless of ownership:<br>• Four or more separate claim payments of more than $5,000 each (including building and contents payments)<br>• Two or more separate claim payments (building payments only) where the total of the payments exceeds the current value of the property<br>In either case, two of the claim payments must have occurred within 10 years of each other. Multiple losses at the same location within 10 days of each other are counted as one loss, with the payment amounts added together. The loss history includes all ownership of the property since 1978 or since the building's construction if built after 1978. |
| Slow Rise Flooding | Slow rise flooding occurs as a gradual inundation as waterways or lakes overflow their banks. Most often caused by heavy precipitation, especially with heavy snowmelt. Includes riverine flooding in deep floodplains and ponding of water in low-lying urban areas, as well as gradual flooding in areas adjacent to local streams and creeks. |
| Special Flood Hazard Area (SFHA) | SFHAs are areas subject to inundation from a flood that has a 1 percent chance of being equaled or exceeded in a given year. |

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| State Plan of Flood Control (SPFC) | Collectively, the facilities, lands, programs, conditions, and mode of operation and maintenance for the State-Federal flood protection system in the Central Valley. This area is shown in the figure provided under CVFPP definition. |
| Tools | Tools include data, models, and assessments needed for decision making in all aspects of flood management. DWR continues enhancing and sharing technical resources (tools) across all programs and projects. This includes flood, environmental, and water management data gathering, modeling, and the technical aspects of flood readiness and emergency response. Technical and modeling information help inform thorough and thoughtful planning, along with accurate design of flood management facilities. |
| Transportation Facility | Runways, railway bridges, rail facilities, port facilities, light-rail facilities, highway bridges, ferry facilities, bus facilities, and airport facilities, as defined by HAZUS-point shapefiles. |
| Tsunami Flooding | Tsunami flooding occurs as a result of high-speed ocean waves triggered by mass movement that displaces a large volume of water. Causes include earthquakes and underwater landslides. Impact on land depends on wave height and inundation area. |
| Utilities | Wastewater, potable water, oil, natural gas, electric power, and communications facilities, as defined by HAZUS-point shapefiles. |
| V-Zone | The V-zone is an area inundated by 1 percent annual chance (100-year) flooding with velocity hazard (wave action); no base flood elevations have been determined. |
| Vulnerability | Vulnerability is the susceptibility to loss or damage of people and property exposed to the flood hazard. |
| Water Data Library (WDL) | The WDL is a searchable Geographic Information System (GIS) interface on the Internet. WDL allows users to access information about monitoring gauges, groundwater data, and water quality. |

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US Army Corps of Engineers ®

The complete report, *California's Flood Future: Recommendations for Managing the State's Flood Risk*, including technical attachments and other supporting information is available for review at:

**http://www.water.ca.gov/SFMP**