

# 1. Introduction

## 1.1 Proposal and Lead Agencies

This Draft Environmental Impact Report/Environmental Impact Statement (DEIR/EIS) has been prepared by the California Department of Water Resources (DWR) and the U.S Department of the Interior (DOI), Bureau of Reclamation, Mid-Pacific Region (Reclamation) to address the potential effects of alternative plans for the North-of-the-Delta Offstream Storage (NODOS) Project. The NODOS Project described in this document has been developed as part of the NODOS Investigation.

This chapter contains background information regarding DWR and Reclamation; describes the purpose of and need for the proposed Project, including discussion of Project objectives; describes the authorizations for DWR and Reclamation to study NODOS; summarizes the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) requirements for this DEIR/EIS; and provides a general overview of the environmental process for this DEIR/EIS.

DWR is serving as the State lead agency for compliance with CEQA. DWR was created in 1956 to manage the water resources of California in cooperation with other agencies, to benefit the State's people, and to protect, restore, and enhance the natural and human environments. One of DWR's primary responsibilities is to operate and maintain the State Water Project (SWP), which delivers water to agricultural, municipal, and industrial contractors in the Central Valley, the San Francisco Bay Area, upper Feather River areas, central coast, and southern California. Of the contracted water supply, approximately 75 percent goes to municipal and industrial users and 25 percent to agricultural users. One of DWR's goals is to protect and improve the water resources and dependent ecosystems of statewide significance, including the Sacramento-San Joaquin Bay-Delta Estuary. DWR's responsibilities and goals have informed this investigation. The DWR contact person for the proposed Project is:

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Reclamation is serving as the federal lead agency for compliance with NEPA. Reclamation was established in 1902 to assist in meeting the increasing water demands of the West. The mission of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public. Reclamation is the largest water provider in the country and the second largest producer of hydroelectric power in the western United States. Reclamation's Mid-Pacific Region is responsible for managing the Central Valley Project (CVP), which stores and delivers approximately 20 percent of the state's developed water – up to seven million acre-feet (MAF) annually – to more than 250 water contractors throughout California. Of the contracted water supply, approximately 70 percent goes to agricultural users, 20 percent is dedicated to fish and wildlife habitat, and 10 percent goes to municipal and industrial users. The Reclamation contact person for the proposed Project is:

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The NODOS Project has been investigated by DWR and Reclamation in coordination with cooperating and responsible agencies, other resource agencies, stakeholders, and the public. The study is consistent with the 1983 U.S. Water Resources Council *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies* (P&Gs) (WRC, 1983), NEPA, CEQA, and other pertinent federal, State, and local laws and policies. The NODOS Project includes both this DEIR/EIS and the accompanying feasibility report and appendices. While the DEIR/EIS describes the potential effects of NODOS Project alternatives, the draft feasibility report highlights the potential costs and benefits of the alternatives.

## 1.2 Purpose and Need and Project Objectives

Purpose and need and project objectives are important elements of an EIR and an EIS, as they document the reasons for a project. CEQA requires a statement of project objectives. NEPA requires a statement of the purpose and need for the action. This section describes the purpose and objectives of the proposed Project and need for the action.

### 1.2.1 Purpose Statement and Project Objectives

The purpose of the proposed Project is to build offstream surface storage located north of the Delta. The proposed Project's primary objectives are to:

- Improve water supply reliability for agricultural, urban, and environmental uses
- Increase survival of anadromous and endemic fish populations
- Improve environmental and drinking water quality in the Delta
- Provide flexible hydropower generation to support integration of renewable energy sources

The secondary objectives for the proposed Project, based on opportunities that were identified during formulation of alternatives that met the primary objectives, are to:

- Develop additional recreation opportunities
- Provide incremental flood damage reduction opportunities

An initial step in the planning process is to identify and then define problems, needs, and opportunities. Consistent with the requirements of CEQA, NODOS Project objectives were derived from this needs assessment. Needs and objectives were considered and developed in an iterative manner so that a more thorough understanding of each need and objective could be developed. DWR and Reclamation have relied upon several sources of information during the NODOS Project's needs and objectives development process. The CALFED Bay-Delta Program (CALFED Program), for example, provided a comprehensive overview of California's water resources needs. In addition to their water management responsibilities, DWR and Reclamation have also developed water resources planning information related to water resources needs. CALFED and the lead agencies also provided opportunities for input related to needs from State and federal resources agencies, local and regional water interests, and the public. The

need for the proposed Project is described below, including background provided by the CALFED Program.

### **1.2.1.1 CALFED Bay-Delta Program and North-of-the-Delta Offstream Storage**

The NODOS Project is derived from and relies upon information developed by and for the CALFED Program. However, the NODOS Project DEIR/EIS is not programmatically tiered from the CALFED Program.

The CALFED Program was established to “develop and implement a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta system” (CALFED, 2000). The CALFED Program identified the need for up to six million acre-feet of additional storage, including an additional three million acre-feet of storage north of the Delta. The CALFED Program sought to build a framework for managing California’s water resources, stating that “expanding water storage capacity is critical to the successful implementation of all aspects of the CALFED Program. Not only is additional storage needed to meet the needs of a growing population, but, if strategically located, it will provide much needed flexibility in the system to improve water quality and support fish restoration efforts. Water supply reliability depends upon capturing water during peak flows and during wet years, as well as more efficient water use through conservation and recycling” (CALFED, 2000). The CALFED Program began in May 1995 to address the complex issues that surround the Bay-Delta with a cooperative interagency effort of 18 State and federal agencies with management or regulatory responsibilities for the Bay-Delta. In addition, the CALFED Program was a collaborative effort including representatives of agricultural, urban, environmental, fishery, and business interests, Indian tribes and rural counties who have contributed to the process.

The CALFED Program objectives were fourfold: 1) to restore the ecological health of a fragile and depleted Bay-Delta estuary; 2) to improve the water supply reliability for the State’s farms and growing cities that draw water from the Delta and its tributaries, including seven million acres of the world’s most productive farmland; 3) to protect the drinking water quality of the 27 million Californians who rely on the Delta for their supplies; and 4) to protect the Delta levees that ensure its integrity as a conveyance and ecosystem. Surface storage is part of an overall water management strategy that incorporates other CALFED Program actions, such as conservation, water use efficiency, conveyance, transfers, groundwater storage and conjunctive use, and habitat restoration to meet these Program objectives.

In 1997, DWR initiated the North-of-the-Delta Offstream Storage Investigation, which Reclamation joined later. Consistent with CALFED’s surface storage screening (described in Chapter 2 Alternatives Analysis), the Investigation considered four potential reservoir locations north-of-the-Delta. Evaluations and determinations for each reservoir location are included in this DEIR/EIS. Refer to Chapter 2 Alternatives Analysis for a more detailed history of the CALFED Program, its relationship to the NODOS Project, and the evaluation of the four reservoir locations. The NODOS Project would help provide the needed additional north-of-the-Delta surface storage identified by the CALFED Program. The CALFED Record of Decision (ROD) (CALFED, 2000) suggested several objectives for consideration by the NODOS Project, including water supply reliability, fish survival, and water quality, and identified a need for additional operational flexibility that is described below.

### **1.2.1.2 Needs and Project Objectives**

As noted above, the NODOS Project identified six needs and opportunities that are the basis of the primary and secondary objectives. The NODOS Project also identified one additional need: operational flexibility. Following is a description of the needs and opportunities identified by the NODOS Project.

### **1.2.1.3 Water Supply Reliability for Agricultural, Urban, and Environmental Uses**

The California Water Plan Update identifies two supporting elements to achieve the State's vision for water resources: sustainable water uses and reliable water supplies. Water managers and users are concerned with both the quantity and frequency of their supplies, which are direct measures of water supply reliability. For surface water systems such as the CVP and SWP, the reliability for a particular user is determined by both runoff and system-specific needs and capabilities. In drier years, there is less water available for delivery than in wetter years. System needs include the total water user demand on the system and requirements such as water quality standards, instream flows for habitat or species, and flood operations. The following provides examples of reliability challenges in California.

Water supply reliability requires the delivery of specified amounts of water at predictable locations and times. A review of DWR's SWP Delivery Reliability Reports since 2002 (2002, 2005, 2007, 2009, and 2011) indicates declining SWP reliability. Average SWP delivery reliability has been reduced by almost 500,000 acre-feet. However, limitations on water exports during wet conditions have resulted in greater reservoir storage during drought conditions, and that in turn has slightly increased drought delivery reliability. Despite marginal reliability improvements in drier conditions, additional reliability is still needed. The CVP has experienced similar reductions in delivery reliability.

During prolonged droughts (such as 1987 to 1992 and 2007 to 2009) or multiple dry years, water in storage is reduced and water supplies are less reliable, which increases competition among water users. This competition is exacerbated by increased environmental requirements and reduced natural rainfall for agriculture. A new surface storage reservoir would provide a means of improving water supply reliability, especially during drier periods.

From a planning perspective, emergency response has been incorporated into the water supply reliability objective. By improving water in storage at any given time, operators would have additional water available in storage to respond to specific types of emergencies, including emergency water supply for maintenance of Delta salinity following a levee failure.

In addition, California's mountain snowpack is melting earlier in spring and is projected to decrease over time, and sea level rise along the coast is beginning to threaten Delta water supplies and estuarine habitat as seawater intrudes into the Delta. Runoff is concentrated during shorter periods, and additional water is required to maintain Delta water quality. In addition to impacting water in storage, all of these effects tend to diminish water supply reliability. The additional storage provided by the proposed Project would help mitigate and adapt to these reliability trends.

### **1.2.1.4 Survival of Anadromous and Endemic Fish Populations**

Populations of anadromous and endemic fish species within the Sacramento Valley river system and Bay-Delta are declining. The primary causes of the anadromous fish species decline have been identified as barriers to historic habitat, habitat degradation, predation from introduced species, reduced instream flows, and increased water temperatures (NMFS, 2009). Several potential causes of fish species declines in the Bay-Delta have been identified, including a combination of reduced habitat suitability (such as

changing salinity), reduced food sources, entrainment, invasive species, predation, and toxins (Baxter et al., 2010). Onstream dams block many of the native anadromous species from their historic spawning areas. This impact of onstream dams is partially mitigated with cold water releases that keep the water downstream of the dams cold enough to provide limited spawning and rearing habitat. Similar to deliveries, water temperature has a reliability that is based upon operations and hydrology. The reliability of cold water in these streams can be increased and temperatures for anadromous fish can be improved by both maintaining additional water in storage year to year and releasing additional water at specific times to improve temperatures. Additional water in storage can also be released to improve Delta outflow. These actions must be balanced and coordinated with water deliveries to achieve desirable conditions. Additional storage from the proposed Project would provide a source of additional water within the SWP and CVP systems that could be used to facilitate several ecosystem restoration and enhancement actions to improve conditions in the Delta and Sacramento River watershed.

#### **1.2.1.5 Water Quality**

Water quality concerns associated with the Delta include salinity and toxins (e.g., pesticides, dissolved ammonia, and methyl mercury) from up-river sources. The CVP and SWP systems currently meet water quality requirements by releasing additional water from upstream reservoirs. Additional water in storage from new proposed Project storage could improve Delta water quality by providing higher-quality supplemental flows dedicated to Delta outflow during periods when Delta water quality is impaired. Water quality improvements would benefit drinking water quality for urban customers, irrigation, and the Bay-Delta ecosystem.

#### **1.2.1.6 Flexible Hydropower Generation**

California's renewable energy goal is to increase the portion of energy produced by renewable sources in the State to 33 percent by 2020. By law, a hydroelectric generation facility that exceeds 30 megawatts is ineligible to be considered a renewable electrical generation facility, so none of the electricity generated by the proposed Project could be counted towards that goal (Pub. Util. Code, § 399.12). Nevertheless, the design and operation of the proposed Project would take advantage of other intermittent renewable energy sources such as wind and solar, which are less reliable than other non-renewable sources of energy. There is a need to match renewable energy sources with reliable and flexible generation energy sources to cover short-term gaps in generation, such as when winds diminish in wind generation-intensive areas. The proposed Project would be built with pumping/generating plants capable of producing hydropower. Electricity would be generated when water is released from the proposed Sites Reservoir into the proposed Holthouse Reservoir, and from the proposed Holthouse Reservoir to the proposed Terminal Regulating Reservoir and into the Sacramento River. The proposed Project would also be capable of daily pump-back operations. In pump-back operations mode, water would be released from the proposed Sites Reservoir into the proposed Holthouse Reservoir during on-peak hours to generate electricity, and water would be pumped back into the proposed Sites Reservoir during the off-peak hours to complete the pump-back operations cycle. Additional storage provided by the proposed Project could facilitate flexible hydropower generation, which could be quickly ramped up or down to complement wind or solar generation to meet power demands and support reliable operation of the power grid. Hydropower provided by the proposed Project could be brought online relatively quickly, and would be well suited to provide flexible generation. The effect would be to operate the reservoir like a battery, charging it with renewable energy such as wind when that energy was available but underutilized, and then producing energy during times of peak demand. Hydropower, when paired with solar and wind energy, could reduce greenhouse gas emissions associated with the use of non-renewable sources of energy.

### **1.2.1.7 Additional Recreation Opportunities**

Generally, large metropolitan areas, such as Sacramento, have high demands for water-oriented recreational opportunities. Some of these demands are served by reservoirs on the western slope of the Sierra Nevada. However, as population increases in the Sacramento Valley, demands for flat water, river, and land-based recreation are expected to increase. The planning of any reservoir north of the Delta provides an opportunity to develop new recreational facilities and provide additional opportunities for recreation activities such as fishing, swimming, camping, boating, and hiking. The proposed Project would provide up to five new recreation areas.

### **1.2.1.8 Incremental Flood Damage Reduction**

Offstream storage can provide incremental flood damage reduction improvements to areas located immediately downstream of the reservoir that are prone to flooding. The proposed Project would not dam a major stream, but would dam two ephemeral creeks that are known to cause local flood damage. The proposed Project would therefore provide local flood damage reduction.

### **1.2.1.9 Operational Flexibility**

Operational flexibility was identified as a need by both the CALFED Program and the NODOS Project. Operational flexibility can be defined as the ability of water systems to adapt and respond to changing or uncertain conditions. Water in storage is a metric of operational flexibility; increased water in storage provides increased operational flexibility for a system by allowing system operators and water managers to do more. Water managers employ the flexibility of the systems they manage to accomplish a variety of water management objectives. As noted above in the discussion of Project objectives, additional water in storage can be used to deliver more water to users, improve ecosystem conditions within the system, or improve water quality. In this sense, operational flexibility has a direct relationship with water management generally, and with meeting water management objectives specifically.

California's water management challenges include growing drought impacts, declining ecosystems, diminishing water quality, increasing climate change impacts to the State's hydrology, increasing flood risk, and aging infrastructure (DWR, 2009). The California Water Plan Update (DWR, 2009) notes that, "the entire system—water and flood management, watersheds, and ecosystems – has lost its resilience and is changing in undesirable ways." This loss of resiliency is the result of decreased operational flexibility.

An example of the loss of operational flexibility in the State's water systems is the declining trend of end-of-water-year storage. Shasta Lake is California's largest reservoir and the largest storage facility of the CVP. The water stored in Shasta Lake represents approximately 41 percent of the total storage capacity of the CVP (Reclamation, 2013). Lake Oroville is the State's second largest reservoir and keystone of the SWP. Figure 1-1 shows the trend in Shasta Lake end-of-water-year storage (i.e. water in storage) from 1953 to 2012. Figure 1-2 shows the trend in Lake Oroville end-of-water-year storage from 1968 to 2012. The trend of end-of-water-year storage is diminishing, from over 3 million acre-feet to under 2.5 million acre-feet at Shasta Lake, and from 2.4 million acre-feet to approximately 1.8 million acre-feet at Lake Oroville. Generally, there is less water in storage at the beginning of each water year (i.e. end of September) than has been available over the history of either reservoir. There are likely many reasons for these trends<sup>1</sup>. However, consideration of the operational changes over time associated with the State's

<sup>1</sup> Fundamentally, water in storage is directly related to two factors: inflow (i.e. hydrology) and releases (i.e. operations). The trend of inflow to the Shasta Lake is essentially flat (i.e. has not varied over time), with a slight upward trend. The Lake Oroville inflow trend is diminishing, but at a slower rate than storage. Therefore, it is likely that the diminishing trend in end of water year storage is due primarily to changes in operations over time. Some highlights of these changes are generally described in the text.

two largest water systems is helpful to understand these trends. When the CVP and SWP were first constructed, the systems had operational flexibility. Deliveries and regulatory requirements were less; both have increased over time. The flexibility that the systems originally possessed has been used to meet the greater delivery amounts and increasing regulatory requirements needed to protect habitats and species.

Today, the CVP and SWP systems do more than ever, including increased deliveries to agricultural, urban, and environmental (refuge supply) users, as shown in Figure 1-3. The reservoirs are serving more purposes than they have historically. Due to changing regulatory requirements, the quantities of water needed to meet Delta water quality standards have increased. The quantities of water dedicated to habitat and ecosystem functions are greater as well, including new commitments associated with the CVP Improvement Act in 1992 (CVPIA) and years following, as well as the 2008 and 2009 Biological Opinions for the protection of both Delta and upstream fish species. Consequently, the CVP and SWP water systems have lost flexibility in timing, location, and capacity to meet these multiple objectives, resulting in increased competition and conflicting demands for limited water in storage. All of these increasing commitments are affecting the system reservoirs generally, and Shasta Lake and Lake Oroville specifically, which can be seen in the decreasing end-of-water-year storage trends.

Requested contract delivery amounts and actual deliveries have also increased over time for both the CVP and SWP. For example, historical deliveries from the Delta are shown in Figure 1-3. These Delta deliveries are both the largest and most variable portion of CVP and SWP deliveries. Chronologically, deliveries reached a peak around 1990 and then varied with runoff and operational limits over the next two decades. Without significant improvements to north of Delta storage, a continuing trend of diminishing end-of-September storage into the future is likely. While the effect of the 1992 CVPIA should be fully reflected in the historic trend, now twenty years after implementation, the effects on the trend of the 2008 and 2009 Biological Opinions are not.

In addition, it is anticipated that the system will be more constrained in the future, with increasing challenges due to the effects of increasing temperatures, sea-level rise, and variability and uncertainty from changing snow and rainfall patterns. For example, climate scientists expect that California's natural water storage in the form of snow, which water managers and operators rely on for more effective reservoir storage operations, will diminish. Sea-level rise will require additional water to be dedicated to salinity repulsion in the Delta, including additional releases from upstream reservoirs. These changes will further diminish reservoir storage and the operational flexibility of the systems that depend on them. These and other effects associated with climate change are described in greater detail in Chapter 25 Climate Change and Greenhouse Gas Emissions.

Additional water in new storage, such as additional water in a new offshore storage reservoir located north of the Delta, would contribute to increased system flexibility. From a system perspective, operational flexibility can be assessed by evaluating the additional water in storage that can be used to meet existing and future water demands. To achieve this kind of flexibility, additional storage would be most effective when operationally integrated with existing SWP and CVP facilities. Supplemental north of Delta storage would provide the ability to increase the water in storage in existing system reservoirs such as Shasta Lake, Lake Oroville, Trinity Lake, and Folsom Lake. The additional water in new offshore storage and increasing water levels in existing reservoirs can meet a larger set of system objectives. For example, water users and ecosystem needs immediately downstream of existing reservoirs need additional water in those reservoirs to meet those needs; additional water in new offshore storage alone would not improve the system's ability to meet needs below existing reservoirs without integration.

The total improvement in flexibility would be both additional water in existing reservoirs and additional water in new offstream storage.

This type of effective additional storage would be able to provide a wide range of water resources benefits throughout the State, including increased water supply reliability for agricultural, environmental, municipal, and industrial uses; water quality maintenance and improvement; increased flexible hydropower generation; and maintenance and improvement of aquatic ecosystems. Most of these existing system objectives have operating or allocation rules based upon the amount of water in storage. These rules or operations guidance explicitly acknowledge the relationship between water in storage (i.e. system operational flexibility) and meeting system needs or objectives.

### 1.3 North-of-the-Delta Offstream Storage Study Authorizations

The CALFED ROD (CALFED, 2000) directed DWR and Reclamation to: 1) complete environmental and planning documentation for the NODOS Project and 2) develop a joint planning program through a Memorandum of Understanding (MOU) with local water interests, counties, and State and federal agencies to carry out the NODOS Project. This DEIR/EIS and the companion draft Feasibility Report constitute the completion of environmental and planning documentation. Following the signing of the CALFED ROD, DWR and Reclamation formed a MOU partnership with local water interests and other State and federal agencies to investigate offstream storage north of the Delta. Local, regional, and other State and federal agency participation has continued during the investigation. DWR received authorization to study the NODOS Project beginning in 1996. Reclamation received feasibility study authority to investigate the NODOS Project in 2003.

State of California authorities for the NODOS Investigation are summarized below:

- **Proposition 204. The Safe, Clean, Reliable Water Supply Act of 1996:** Notwithstanding Section 13340 of the Government Code, the money in the subaccount is hereby continuously appropriated, without regard to fiscal year, to the department, for the administration of this article and for feasibility and environmental investigations for any of the following projects: (a) Off-stream storage upstream of the Delta that will provide storage and flood control benefits in an environmentally sensitive and cost-effective manner.
- **Budget Act, 1997 to 1998:** This act authorized DWR to continue feasibility and environmental studies pertaining to the Sites Reservoir and alternatives. As a result, DWR expanded the 1997 reconnaissance study to a broader investigation.
- **Proposition 50. Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002:** The sum of \$825 million shall be available for appropriation by the Legislature from the fund for the balanced implementation of CALFED expenditures and grants pursuant to this chapter shall be limited to...\$50 million for surface water storage planning and feasibility studies.
- **Proposition 84. 2006 Safe Drinking Water Bond Act:** The sum of \$65 million shall be available to DWR for planning and feasibility studies related to the existing and potential future needs for California's water supply, conveyance, and flood control systems. The studies shall be designed to promote integrated, multi-benefit approaches that maximize public benefits of the overall system including protection of the public from floods, water supply reliability, water quality, and fish, wildlife, and habitat protection and restoration.

Federal authorities for the NODOS Investigation are summarized below:

- **Public Law 108-7. Consolidated Appropriations Resolution, Sec. 215, 2003:** The Secretary of the Interior, in performing CALFED-related activities, may undertake feasibility studies for Sites Reservoir, Los Vaqueros Reservoir Enlargement, and Upper San Joaquin Storage projects. These storage studies should be pursued along with ongoing environmental and other projects in a balanced manner.
- **Public Law 108-137. Energy and Water Development Appropriations Act, Sec. 211, 2003:** The Secretary of the Interior, in performing CALFED-related activities, may undertake feasibility studies for Sites Reservoir, Los Vaqueros Reservoir Enlargement, and Upper San Joaquin Storage projects, hereafter. These storage studies should be pursued along with ongoing environmental and other projects in a balanced manner.
- **Public Law 108-361. CALFED Bay-Delta Authorization Act (2004):** (1) Record of Decision (ROD) as general framework. The ROD is approved as a general framework for addressing CALFED, including its components related to water storage, ecosystem restoration, water supply reliability (including new firm yield), conveyance, water-use efficiency, water quality, water transfers, watersheds, the Environmental Water Account, levee stability, governance, and science. (2) Secretary of the Interior. The Secretary of the Interior is authorized to carry out the activities...to the extent authorized under the reclamation laws, the Central Valley Project Improvement Act (title XXXIV of Public Law 102-575; 106 Stat. 4706), the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.), the Endangered Species Act (ESA) of 1973 (16 U.S.C. 1531 et seq.), and other applicable law...Description of Activities Under Applicable Law (1) Water storage (i) planning and feasibility studies for (I) the Sites Reservoir in Colusa County.

## 1.4 CEQA and NEPA Requirements

Both CEQA and NEPA require governmental agencies to evaluate the environmental impacts of their proposed decisions before making formal commitments to carry them out, and that such evaluation be done in detail, and with public involvement. CEQA is a California law and applies to State and local agencies, whereas NEPA is a federal law and applies to federal agencies. For the proposed Project, CEQA requires preparation of an EIR, and NEPA requires preparation of an EIS.

Despite the similarities between the two laws, important differences exist. CEQA requires that State and local government agencies consider the environmental consequences of projects over which they have discretionary authority before taking action on those projects. As described in the *CEQA Guidelines* Section 15121(a), an EIR is a public informational document that assesses the potential environmental effects of the proposed project, as well as identifies mitigation measures and alternatives to the proposed project that could reduce or avoid adverse environmental impacts. CEQA requires that the lead agency (DWR) prepare an EIR if any “potentially significant impacts” are identified that could not be mitigated to a less-than-significant level.

The *CEQA Guidelines* identify several types of EIRs, each applicable to different project circumstances. This EIR was prepared as a Project EIR pursuant to *CEQA Guidelines* Section 15161. This type of EIR focuses primarily on the changes in the environment that would occur as a result of Project implementation, and examines all phases of a particular project (i.e., planning, construction, maintenance, and operation). This DEIR/EIS discloses the Project-level direct, indirect, and cumulative impacts of the alternatives, including a

No Project/No Action Alternative. The CEQA requirement to determine a “significance threshold” for expected impacts presents an important or critical feature of the document. Thresholds of significance are developed using applicable regulations where they exist, or best professional judgment. CEQA requires agencies to implement feasible mitigation measures or feasible alternatives as a means of reducing the severity of significant environmental effects identified in EIRs, and CEQA requires lead agencies to adopt a Mitigation Monitoring and Reporting Plan for changes to the Project that it has adopted to mitigate or avoid significant effects on the environment (*CEQA Guidelines* Section 15097).

Pursuant to NEPA and the Council on Environmental Quality’s (CEQ’s) NEPA regulations, federal agencies are required to evaluate the environmental effects of an action, including feasible alternatives, and identify mitigation measures to minimize adverse effects when they propose to carry out, approve, or fund a project that may have a significant effect on the environment. Reasonable alternatives must be rigorously and objectively evaluated pursuant to NEPA (as opposed to CEQA’s requirement that they be discussed in “meaningful detail”). Pursuant to NEPA, the evaluation of potential impacts must include socioeconomic impacts, whereas CEQA does not require such analysis. Although mitigation is identified in NEPA documents, it is not required to be implemented.

DWR and Reclamation have determined that this combined DEIS/EIR is the most appropriate and accessible means to comply with both CEQA and NEPA because of the complex nature of the proposed Project, need for coordination among federal and State agencies, the need to complete environmental review as expeditiously as possible, and to reduce unnecessary duplication of effort. This document satisfies the requirements of CEQA and NEPA for disclosing environmental impacts and identifying feasible alternatives, mitigation measures, and modifications to the Project that would reduce those impacts.

The alternatives discussed in this DEIR/EIS have been evaluated on an equal non-preferential basis and at an equal level of detail, according to NEPA standards. The Proposed Project/Preferred Alternative will be identified in the Final EIR/EIS (FEIR/FEIS), with that selection to be informed through the CEQA and NEPA processes. Although a final Mitigation Monitoring Plan is not required to be included in an EIR, a draft Mitigation Monitoring Plan has been prepared and included in this DEIR/EIS as Appendix 1A, and is circulated for public and agency review.

#### **1.4.1 Purpose and Intended Use of this DEIR/EIS**

*CEQA Guidelines* Section 15124(d) requires that an EIR contain a statement briefly describing the intended uses of the EIR. The *CEQA Guidelines* indicate that the EIR should identify the ways in which the Lead Agency and any responsible agencies would use this document in their approval or permitting processes. The purpose of this DEIR/EIS is to present the process and overall findings of the NODOS Investigation. This investigation was performed to evaluate the feasibility and impacts of constructing a new water storage facility north-of-the-Delta to improve the flexibility of the SWP and CVP systems to ensure these systems can continue to meet the water supply, water quality, environmental, and energy needs of California.

This DEIR/EIS serves as a companion document to the Draft Feasibility Report, published separately. This DEIR/EIS, and the associated Draft Feasibility Report, is intended to be used by DWR and Reclamation when considering approval of the proposed Project. It provides the needed information for DWR, Reclamation, National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service (USFWS), and the California Department of Fish and Wildlife (CDFW) to support compliance with the

federal Endangered Species Act (ESA), the California Endangered Species Act (CESA), the Natural Community Conservation Planning Act (NCCPA), and the federal Fish and Wildlife Coordination Act. It also provides needed information for the U.S. Army Corps of Engineers (USACE) and the Regional Water Quality Control Board (RWQCB) in Clean Water Act (CWA) Section 408, 404, and 401 applications, as well as information necessary for USACE to issue a Rivers and Harbors Act Section 10 permit.

## 1.5 Federal, State, Regional, and Local Requirements

In addition to DWR and Reclamation, several federal, tribal, State, regional, and local agencies, as well as decision-making bodies, have jurisdiction over resources that could be affected by the proposed Project, or have other permitting or regulatory authority over certain aspects of the proposed Project. These agencies and decision makers will review and consider the information contained in the FEIR/EIS for issuance of permits. Table 1-1 describes key consultation requirements for the NODOS Project:

**Table 1-1  
Anticipated Permits, Approvals and Authorizations for the NODOS Project**

Jurisdiction	Responsibility
<b>Federal Agency Permits, Approvals, and Authorizations</b>	
Federal Energy Regulating Commission (FERC)	<ul style="list-style-type: none"> <li>Operational changes to existing hydroelectric facilities may necessitate a license amendment from FERC.</li> </ul>
National Marine Fisheries Services (NMFS/NOAA Fisheries)	<ul style="list-style-type: none"> <li>Endangered Species Act Section 7 consultation and incidental take authorization</li> <li>Fish and Wildlife Coordination Act compliance</li> <li>Magnuson-Stevens Fishery Conservation and Management Act compliance</li> </ul>
Natural Resources Conservation Service (NRCS)	<ul style="list-style-type: none"> <li>Farmland Protection Policy Act compliance</li> </ul>
United States Army Corps of Engineers (USACE)	<ul style="list-style-type: none"> <li>Rivers and Harbors Act Section 9 (construction of dikes) and Section 10 (alteration of navigable waters) permitting</li> <li>Clean Water Act Section 404 (discharge of dredge or fill material) permitting and associated Section 401 water quality certification; Section 408 (levee modification) permitting</li> <li>Executive Order 11990 (protection of wetlands) compliance</li> </ul>
United States Department of the Interior, Bureau of Reclamation (Reclamation)	<ul style="list-style-type: none"> <li>NEPA lead agency</li> <li>Executive Order 12898 (environmental justice) compliance</li> <li>Executive Order 11988 (floodplain management) compliance</li> </ul>
United States Department of the Interior Secretary	<ul style="list-style-type: none"> <li>Responsible for publishing the Record of Decision.</li> </ul>
United States Department of Justice, Civil Rights Division	<ul style="list-style-type: none"> <li>Americans with Disabilities Act compliance</li> </ul>
United States Environmental Protection Agency (EPA) California Environmental Protection Agency (Cal-EPA)	<ul style="list-style-type: none"> <li>Spill prevention control and countermeasure plan (SPCCP) developed in accordance with United States Code of Federal Regulations (CFR), Title 40, Part 112 (40 CFR 112)</li> <li>Clean Air Act and State Implementation Plan compliance</li> <li>Safe Drinking Water Act compliance</li> </ul>

**Table 1-1  
Anticipated Permits, Approvals and Authorizations for the NODOS Project**

Jurisdiction	Responsibility
United States Fish and Wildlife Service (USFWS)	<ul style="list-style-type: none"> <li>• Endangered Species Act Section 7 consultation and incidental take authorization</li> <li>• Fish and Wildlife Coordination Act compliance</li> <li>• Bald and Golden Eagle Protection Act compliance</li> <li>• Migratory Bird Treaty Act compliance</li> <li>• Wild and Scenic Rivers Act compliance</li> </ul>
<b>State Agency Permits, Approvals, and Authorizations</b>	
California Air Resources Board	<ul style="list-style-type: none"> <li>• Criteria pollutant standards compliance</li> </ul>
California Department of Boating and Waterways	<ul style="list-style-type: none"> <li>• California Harbors and Navigation Code compliance</li> </ul>
California Department of Conservation	<ul style="list-style-type: none"> <li>• Designating Important Farmland in the State</li> </ul>
California Department of Fish and Wildlife (CDFW)	<ul style="list-style-type: none"> <li>• Lake and Streambed Alteration Agreement permitting (pursuant to Section 1602 of the California Fish and Game Code)</li> <li>• California Endangered Species Act consultation and incidental take authorization (Section 2081)</li> <li>• Compliance with Fish and Game Code Sections related to fully protected species, birds of prey, native plant protection, invasive species, sufficient fisheries flows below dams, fish screening, and asphalt removal</li> </ul>
California Department of Toxic Substances Control	<ul style="list-style-type: none"> <li>• Compliance with generation, transportation, treatment, storage, and disposal of hazardous waste regulations</li> </ul>
California Department of Transportation (Caltrans)	<ul style="list-style-type: none"> <li>• Issuance of an encroachment and transportation permits</li> <li>• Approval of a transportation management plan</li> </ul>
California Department of Water Resources (DWR)	<ul style="list-style-type: none"> <li>• CEQA lead agency</li> <li>• Conduct environmental site assessment</li> </ul>
California Energy Commission	<ul style="list-style-type: none"> <li>• Compliance with State energy policies</li> </ul>
California Office of Historic Preservation	<ul style="list-style-type: none"> <li>• National Historic Preservation Act Section 106 consultation</li> </ul>
California State Lands Commission (CSLC)	<ul style="list-style-type: none"> <li>• Potential lease from CSLC for work in areas under CSLC jurisdiction (e.g. along Sacramento River)</li> </ul>
California Water Commission	<ul style="list-style-type: none"> <li>• Quantification of public benefits of water storage projects</li> </ul>
Central Valley Flood Protection Board	<ul style="list-style-type: none"> <li>• Levee and floodway encroachment permitting</li> </ul>
Delta Stewardship Council	<ul style="list-style-type: none"> <li>• Delta Plan consistency</li> </ul>
Native American Heritage Commission	<ul style="list-style-type: none"> <li>• Identification of sacred sites and Most Likely Descendants for Native American burials and provision of Native American contact information</li> </ul>
<b>Regional and Local Agency Permits, Approvals, and Authorizations</b>	
Colusa and Glenn Counties	<ul style="list-style-type: none"> <li>• Surface Mining and Reclamation Act (SMARA) permitting or exemption if borrow is required from borrow site(s) not previously permitted under SMARA.</li> </ul>
Planning Department	<ul style="list-style-type: none"> <li>• Issuance of Conditional Use Permit (CUP)</li> <li>• Rezoning of parcels in both counties</li> <li>• Conformance with CEQA environmental review requirements</li> </ul>

**Table 1-1  
Anticipated Permits, Approvals and Authorizations for the NODOS Project**

Jurisdiction	Responsibility
Engineering and Surveying Services Department	<ul style="list-style-type: none"> <li>• Plan approval for any County road or bridge crossings at creeks or grading for structures within 50 feet from the top of creek banks; grading and drainage plan; and grading permit</li> <li>• Erosion control plan development and permitting</li> <li>• Building and electrical permitting</li> <li>• Development of blasting Plan for foundation and roadway installation</li> </ul>
Environmental Health Services Department	<ul style="list-style-type: none"> <li>• Septic and water system permitting</li> </ul>
Roads Department	<ul style="list-style-type: none"> <li>• Encroachment permitting</li> <li>• Construction traffic control plan development for County roads</li> <li>• Assessment of fees for increases in peak-hour trips, if required</li> <li>• Heavy haul permitting</li> <li>• Roadway damage and repair bonds</li> </ul>
Fire Department	<ul style="list-style-type: none"> <li>• Annual permitting for the use and storage of hazardous and flammable materials/wastes</li> <li>• Hazardous materials business plan development</li> <li>• Fire protection plan development</li> </ul>
Colusa County Air Pollution Control District (CCAPCD) Glen County APCD	<ul style="list-style-type: none"> <li>• Emission permitting</li> </ul>
State Water Resources Control Board (SWRCB) and Central Valley Regional Water Quality Control Board	<ul style="list-style-type: none"> <li>• Clean Water Act Section 401 certification Clean Water Act Section 402 National Pollutant Discharge Elimination System (NPDES) permitting (requirements include preparation of a construction stormwater pollution prevention plan [SWPPP] intended to comply with Glenn and Colusa County requirements)</li> <li>• Water rights regulation</li> </ul>

All federal, State, regional, and local legislation and policies that were considered during impact evaluations for each of the resource chapters, or that will be used for decision making for the proposed Project, are detailed in Chapter 4 Environmental Compliance and Permit Summary of this DEIR/EIS.

Local and regional coordination has been an important part of the NODOS Project. Subsequent to the passage of the 2009 Comprehensive Water Package, local water interests and counties formed the Sites Project Joint Powers Authority (Sites JPA), which includes water districts and county governments. The Sites Project JPA became a cost-share partner of the NODOS Project when it requested and received State funding in 2011 to help support development of the DEIR/EIS. The Sites JPA is also a cooperating and responsible agency.

## 1.6 Notice of Preparation and Notice of Intent

DWR filed a Notice of Preparation (NOP) with the State Clearinghouse on November 5, 2001, and Reclamation published a Notice of Intent (NOI) in the *Federal Register* on November 9, 2001 to announce the intent to prepare a joint EIR/EIS for the proposed Project. The NOP/NOI notified the public of the Project proposal, announced the dates and locations of public meetings, and solicited public comments to help guide development of the EIR/EIS, pursuant to CEQA and NEPA, respectively. The NOP/NOI identified the No Project, No Action, Sites Reservoir, and Newville Reservoir alternatives for

analysis. The NOP/NOI also identified other potential alternatives, including conjunctive use or Shasta Reservoir enlargement, either as stand-alone projects or in conjunction with other NODOS Project alternatives to meet the NODOS Project objectives.

## **1.7 Proposed Project/Proposed Action Concept**

The proposed Project would consist of a new offstream storage reservoir with two main dams, up to nine saddle dams, and up to five recreation areas. The reservoir would have an associated inlet/outlet structure and would be connected to the Sacramento River by two existing screened canals and a new screened pipeline. Water conveyance between the reservoir and the canals and pipeline would be facilitated by two new regulating reservoirs and their associated pumping/generating plants. A new transmission line would connect the pumping/generating plants and their associated electrical switchyards to an existing transmission line in the proposed Project area. New roads and a bridge would be constructed to provide access to the proposed Project facilities and over the proposed reservoir, and some existing roads would be relocated or improved. The proposed Project would require modifications to an existing canal and pumping plant. A more complete description of the proposed Project can be found in Chapter 3 Description of Proposed Project/Proposed Action and Alternatives. The proposed Project would be operated generally in the following manner (Figure 1-4) to achieve Project objectives and the Project purpose:

- Runoff from tributaries entering the Sacramento River downstream of Keswick Dam, and Shasta Lake releases for flood management operations, would be diverted to the existing Red Bluff Pumping Plant (and then to the T-C Canal), to the existing GCID Pumping Plant (and then to the GCID Canal), and/or to the proposed Delevan Pipeline Intake.
- Water from the screened T-C Canal would be diverted/stored in the proposed Holthouse Reservoir Complex and conveyed to the proposed Sites Reservoir, whenever possible, until Sites Reservoir is filled.
- Water from the screened GCID Canal would be diverted/stored/pumped in the proposed Terminal Regulating Reservoir and conveyed to the proposed Sites Reservoir, whenever possible, until Sites Reservoir is filled.
- Water from the proposed screened Delevan Pipeline Intake would be diverted/stored/pumped in the pumping plant and forebay, and would be conveyed to the proposed Holthouse Reservoir, and to the proposed Sites Reservoir, whenever possible, until Sites Reservoir is filled.
- Water would be released from the proposed Sites and Holthouse reservoirs via the proposed Delevan Pipeline and its associated intake/discharge facilities to the Sacramento River, and electricity would be generated for action alternatives that have a pumping/generating plant at the proposed Delevan Pipeline Intake Facilities.
- Water would be released from the proposed Sites and Holthouse reservoirs to the T-C Canal for diversion to water users, and electricity would be generated.
- Water would be released from the proposed Sites and Holthouse reservoirs to the proposed Terminal Regulating Reservoir and the GCID Canal for diversion to downstream water users, and electricity would be generated.

- Because water would be diverted from the Sacramento River through fish screens to the proposed Sites Reservoir, and releases would be made from the proposed Sites Reservoir back to the Sacramento River and to T-C Canal and GCID Canal water users, operations of existing SWP and CVP facilities throughout the state could be modified to improve flow and water quality conditions for the benefit of anadromous and endemic fish populations; municipal, industrial, and agricultural water users; and wildlife refuges.

DWR and Reclamation developed three action alternatives to meet the primary objectives of the proposed Project. The process that was used to develop the alternatives is described in Chapter 2 Alternatives Analysis. Maps and detailed descriptions of the three action alternatives are provided in Chapter 3 Description of the Proposed Project/Proposed Action and Alternatives.

## 1.8 Proposed Project/Proposed Action Location

The proposed Sites Reservoir would be located in Antelope Valley, approximately 10 miles west of the town of Maxwell, in both Glenn and Colusa counties. Other proposed Project facilities would be located in Tehama, Glenn, or Colusa counties (Figure 1-5).

## 1.9 Study Areas

The proposed Project has the potential to influence SWP and CVP system operations and water deliveries over a large geographic area. To effectively evaluate the effects of the proposed Project's three action alternatives on environmental resources in different geographic regions, DWR and Reclamation identified three study areas to be evaluated in this DEIR/EIS: the Extended, Secondary, and Primary study areas.

The Extended Study Area, consisting of the SWP and CVP service areas, is the largest and most diverse of the three study areas in terms of size, geography, land use, and habitat conditions. As such, it has been described and evaluated in the resource chapters of this document (Chapters 6 through 31) at the lowest level of detail. The Secondary Study Area is smaller than the Extended Study Area and consists of the SWP and CVP facilities that could be affected by proposed Project operations; this study area has been described and evaluated in the resource chapters in more detail than for the Extended Study Area. The Primary Study Area includes the proposed Project facilities and the land immediately surrounding them that would be included in the proposed Project boundary (referred to in this document as the Project Buffer); as such, this study area is the focus of the resource evaluations in this DEIR/EIS. These three study areas are described in more detail below and are shown in Figure 1-6.

### 1.9.1 Extended Study Area

The Extended Study Area includes the entire service areas of the SWP and CVP. These two service areas are located within all or portions of the following 39 counties: Alameda, Butte, Calaveras, Colusa, Contra Costa, El Dorado, Fresno, Glenn, Imperial, Kern, Kings, Los Angeles, Madera, Merced, Monterey, Napa, Nevada, Orange, Placer, Plumas, Riverside, Sacramento, San Benito, San Bernardino, San Diego, San Joaquin, San Luis Obispo, Santa Barbara, Santa Clara, Santa Cruz, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Ventura, and Yolo. The proposed Project's purpose of improved water supply reliability has the potential for long-term direct and indirect effects within these two service areas. The Extended Study Area would also include wildlife refuges that could receive Level 4 water supply from the proposed Project. Those wildlife refuges, which are located within seven counties in the Extended Study Area, are shown on Figure 1-7.

## 1.9.2 Secondary Study Area

The Secondary Study Area is defined as the area of potential operational effects, including SWP and CVP facilities that could experience water surface elevation fluctuations or stream flow changes. Those facilities are located within the following 22 counties: Alameda, Butte, Colusa, Contra Costa, Del Norte, El Dorado, Glenn, Humboldt, Marin, Placer, Sacramento, San Francisco, San Mateo, Santa Clara, Shasta, Solano, Sonoma, Sutter, Tehama, Trinity, Yolo, and Yuba.

Operational changes could occur as a result of the coordinated and integrated operation of the proposed Project's facilities with those State and federal projects located on the American River, Trinity River, Sacramento River, Clear Creek, Spring Creek, Feather River, and the Delta. The Secondary Study Area is shown on Figure 1-8.

## 1.9.3 Primary Study Area

The Primary Study Area is defined as the areas within Glenn and Colusa counties where short-term and long-term direct effects from constructing, operating, and/or maintaining proposed Project facilities may occur. This study area includes the footprints of the proposed Sites Reservoir Inundation Area and other proposed facilities (e.g., dams, intakes/discharge facilities, fish screens, pipelines, transmission line, pumping/generating plants, recreation areas, road relocation areas, borrow areas, and associated facilities). It also includes the construction disturbance areas, i.e., the footprint of each proposed facility plus the area around each facility that would be disturbed over the short-term by Project-related construction activities, vehicles, and equipment. The Primary Study Area also includes the land parcels that surround those Project facilities; these parcels would be purchased but not developed for the proposed Project and are referred to as the "Project Buffer".

DWR and Reclamation have developed three action alternatives (Alternatives A, B, and C which are described in Chapter 2 Alternatives Analysis) to meet the purpose, need, and objectives of the proposed Project. There are differences in the facilities associated with the three alternatives; therefore, the Primary Study Areas for the three alternatives also differ. The Primary Study Areas associated with Alternatives A, B, and C are shown on Figure 1-9A, Figure 1-9B, and Figure 1-9C, respectively. Detailed descriptions of each proposed Project facility are provided in Chapter 3 Description of the Proposed Project/Proposed Action and Alternatives.

## 1.10 Areas of Controversy/Issues to be Resolved

The following areas of controversy and issues to be resolved have been identified to date through stakeholder meetings or during the preparation of this DEIR/EIS:

- **Impacts on Terrestrial Biological Resources:** Golden eagles have been identified as foraging within the proposed Sites Reservoir Inundation Area and nesting within the proposed recreation areas. USFWS has expressed concern about the potential loss of nesting and foraging habitat for golden eagles, which are protected by the Bald and Golden Eagle Protection Act.
- **Impacts on Project Area Property Owners:** Project development would require the demolition of existing structures, acquisition of private property, and relocation of displaced parties. These actions concern property owners within the Primary Study Area.

## 1.11 Public Review of the Draft EIR/EIS

This DEIR/EIS is being circulated to local, State, and federal agencies, as well as to interested organizations and individuals who may wish to review and comment on it. The DEIR/EIS and a Notice of Completion (NOC) has been filed with the Office of Planning and Research, State Clearinghouse; has been publicly noticed in the *Federal Register* and XX newspapers; and is currently being circulated for a review period of 90 days. During this review period, written comments may be submitted to the DWR and Reclamation representatives listed in Section 1.1 of this chapter.

Comments received in response to the DEIR/EIS will be addressed in a Response to Comments addendum document which, together with the revised DEIR/EIS text, will constitute the FEIR/EIS. DWR will provide a written proposed response to a public agency on comments made by that agency at least 10 days prior to certifying the EIR (Reclamation will provide such comments at least 30 days prior to certifying the EIS as required by NEPA). DWR will then review the proposed Project, the EIR, and the public testimony, and decide whether to certify the EIR and adopt any findings and statements of overriding significance before deciding whether to approve or deny the proposed Project. If the proposed Project is approved, DWR will file a Notice of Determination (NOD) with the Governor's Office of Planning and Research, State Clearinghouse within five days of Project approval. This filing will trigger a 30-day period in which a legal challenge to the document may be filed.

Concurrent with this CEQA process, Reclamation will consider the EIS and Proposed Action, and may issue a ROD for the proposed Project and publish it in the Federal Register.

## 1.12 Organization of the DEIR/EIS

This DEIR/EIS includes the following chapters:

- **Executive Summary:** This chapter provides a summary of the Project description, a description of issues to be resolved and areas of controversy, the significant environmental impacts that would result from implementation of the alternatives, and mitigation proposed to reduce or eliminate those impacts.
- **Chapter 1 Introduction:** This chapter describes the purpose, need, objectives, authorization, location of the alternatives being evaluated, and the three study areas; provides an overview of the environmental review process and background for the proposed Project; summarizes the intended use of the EIR/EIS, and lists the areas of controversy and issues to be resolved.
- **Chapter 2 Alternatives Analysis:** This chapter describes the approach used to develop the action alternatives that are evaluated in this DEIR/EIS, including a discussion of the evaluation of alternative reservoir locations, reservoir sizes, and conveyance alternatives. It also describes Existing Conditions and the No Project/No Action Alternative.
- **Chapter 3 Description of Proposed Project/Proposed Action and Alternatives:** This chapter describes in detail the proposed Project facilities included in the action alternatives (Alternatives A, B, and C), and describes Project operation for each of the action alternatives.
- **Chapter 4 Environmental Compliance and Permit Summary:** This chapter presents the regulatory framework for the resources chapters (Chapters 6 through 31).

- **Chapter 5 Guide to Resources Analysis:** This chapter describes the process used to develop the environmental setting (i.e., affected environment) and evaluate the environmental impacts (i.e., environmental consequences) of implementing the alternatives, defines types of impacts and levels of significance, describes mitigation measure development and eliminated topics, and summarizes the modeling tools and analytical methods that were used for each resource analysis.
- **Chapters 6 through 31 Resource Chapter Evaluations:** These chapters include descriptions of the environmental setting (i.e., affected environment), contain assessments of the potential impacts of each of three alternatives within each of three study areas, and list mitigation measures for identified significant and potentially significant impacts, where appropriate, for the following resources:
  - Surface Water Resources
  - Surface Water Quality
  - Fluvial Geomorphology and Riparian Habitat
  - Flood Control and Management
  - Groundwater Resources
  - Groundwater Quality
  - Aquatic Biological Resources
  - Botanical Resources
  - Terrestrial Biological Resources
  - Wetlands and Other Waters of the U.S.
  - Geology, Minerals, Soils, and Paleontology
  - Faults and Seismicity
  - Cultural Resources
  - Indian Trust Assets
  - Land Use
  - Recreation Resources
  - Socioeconomics
  - Environmental Justice
  - Air Quality
  - Climate Change and Greenhouse Gas Emissions
  - Navigation, Transportation, and Traffic
  - Noise
  - Public Health and Environmental Hazards
  - Public Services and Utilities
  - Visual Resources
  - Power Production and Energy
- **Chapter 32 Short-term Uses vs. Long-term Productivity:** This chapter describes the short-term uses vs. long-term productivity of the proposed Project.
- **Chapter 33 Irreversible or Irrecoverable Commitments of Resources:** This chapter describes the irreversible or irretrievable commitments of resources associated with the proposed Project.
- **Chapter 34 Growth-Inducing Impacts:** This chapter describes the growth-inducing impacts associated with the proposed Project.
- **Chapter 35 Cumulative Impacts:** This chapter describes the cumulative impacts of the proposed Project.

- **Chapter 36 Consultation and Coordination:** This chapter describes the public scoping process and the agencies and organizations that have been consulted throughout the process of the NODOS Investigation.
- **Chapter 37 References:** This chapter lists the sources of information used to prepare the DEIR/EIS. All references are listed by the chapter in which they were cited.
- **Chapter 38 List of Preparers and Contributors:** This chapter lists the individuals who participated in the preparation of this DEIR/EIS, and provides the qualifications for those individuals, in order of organization and agency.
- **Chapter 39 EIR/EIS Distribution List:** This chapter lists the elected officials; governmental departments; federal, tribal, State, and local agencies; special interest groups; and individuals who received notice of availability of this DEIR/EIS.
- **Appendixes:** The appendixes are located at the back of this DEIR/EIS and are listed in the Table of Contents

### 1.13 Preparers of the DEIR/EIS

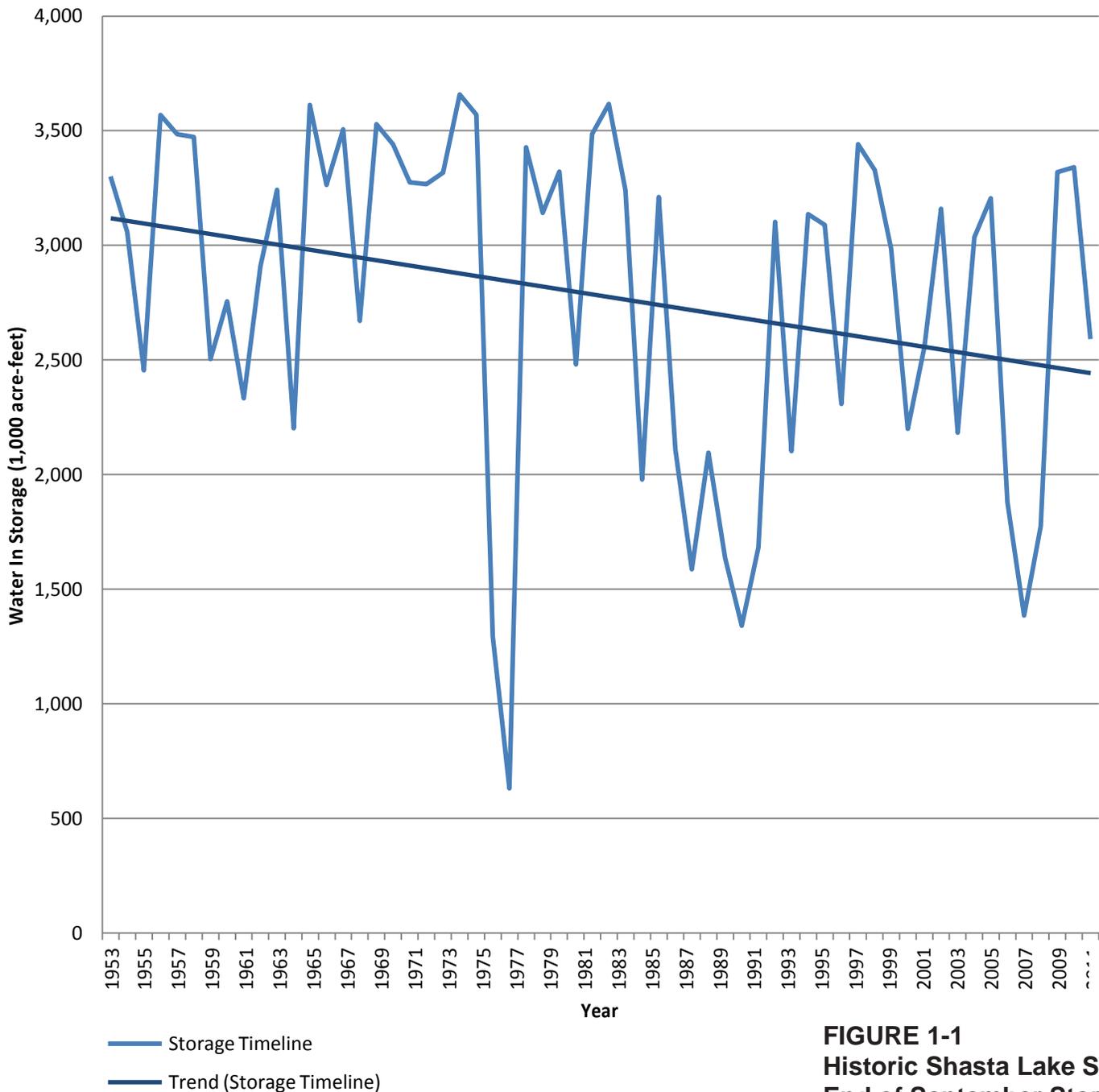
This DEIR/EIS has been prepared by a multi-disciplinary team at the direction of the two lead agencies: DWR and Reclamation. Additionally, the lead agencies have actively solicited input and review from cooperating and responsible agencies, notably USFWS, NMFS, CDFW, SWRCB, Central Valley Regional Water Quality Control Board, Sites JPA, Colusa Indian Community Council, Western Area Power Administration (WAPA), USACE, Bureau of Indian Affairs (BIA), and Cortina Indian Rancheria, described in Chapter 36 Consultation and Coordination. Throughout the DEIR/EIS preparation process, input has been solicited and considered from affected parties and agencies, including local governments, interest groups, and individuals. Chapter 38 List of Preparers and Contributors provides a comprehensive list of the individuals involved in the preparation of the DEIR/EIS, and Chapter 39 EIR/EIS Distribution List provides a list of parties that requested to be involved in the proposed Project in some manner.

### 1.14 References

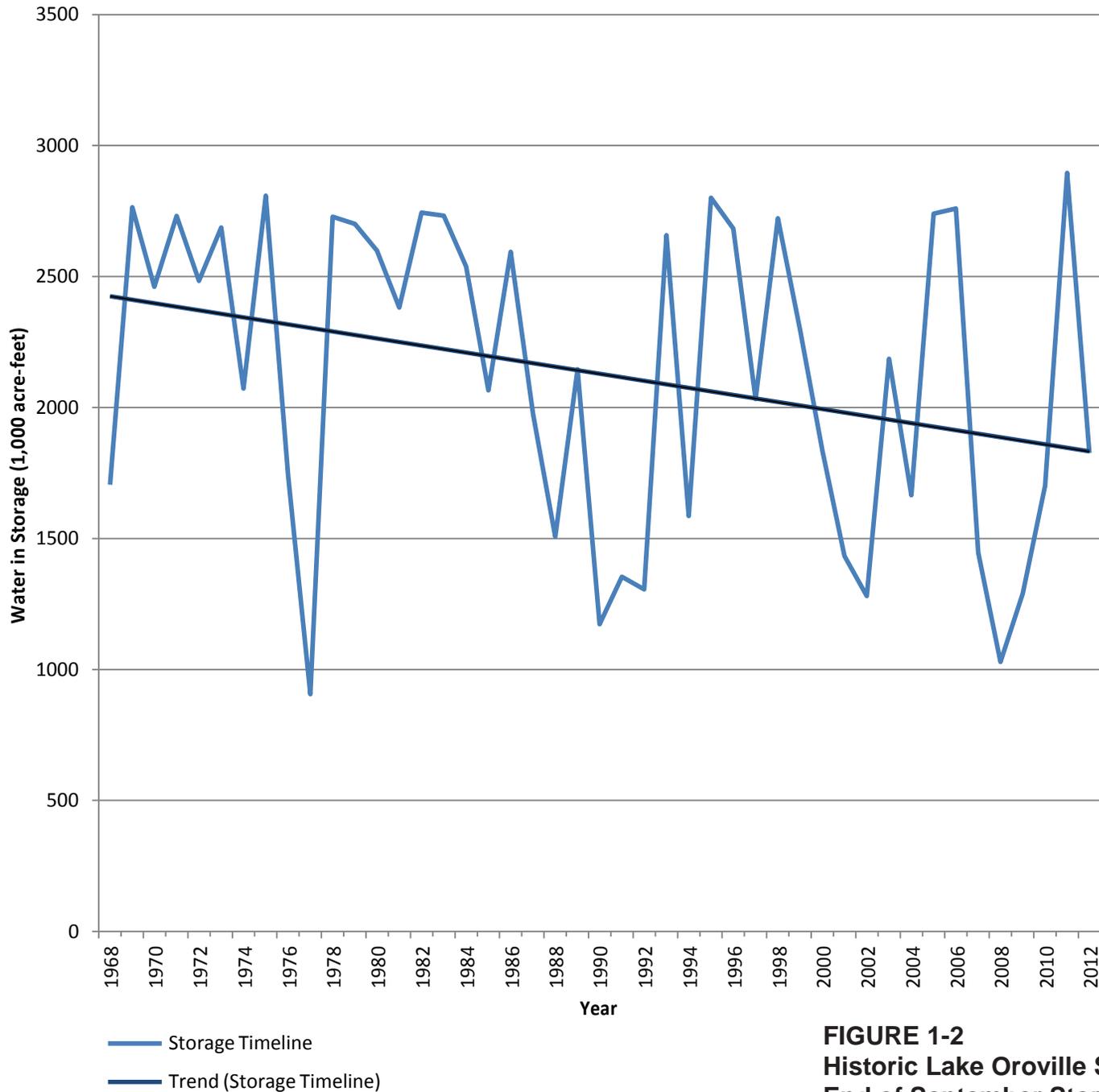
- Baxter R, R Breuer, L Brown, L Conrad, F Feyrer, S Fong, K Gehrts, L Grimaldo, B Herbold, P Hrodey, A Mueller-Solger, T Sommer, and K Souza. 2010. Interagency Ecological Program 2010 Pelagic organism decline work plan and synthesis of results through August 2010. Interagency Ecological Program for the San Francisco Estuary. 125 pages.
- CALFED Bay-Delta Program (CALFED). 2000. CALFED Programmatic Record of Decision. July.
- California Department of Water Resources (DWR). 2009. California Water Plan Update 2009, Integrated Water Management. Bulletin 160-09. December.
- National Marine Fisheries Service (NMFS). 2009. Public draft recovery plan for the Evolutionarily Significant Units of Sacramento River winter-run Chinook salmon and Central Valley spring-run Chinook Salmon and the Distinct Population Segment of Central Valley steelhead. National Marine Fisheries Service, Protected Resources Division. Sacramento, CA. 273 pp.
- U.S. Bureau of Reclamation (Reclamation). 2013. Shasta Lake Water Resources Investigation, California. Draft Environmental Impact Statement. June

## Figures

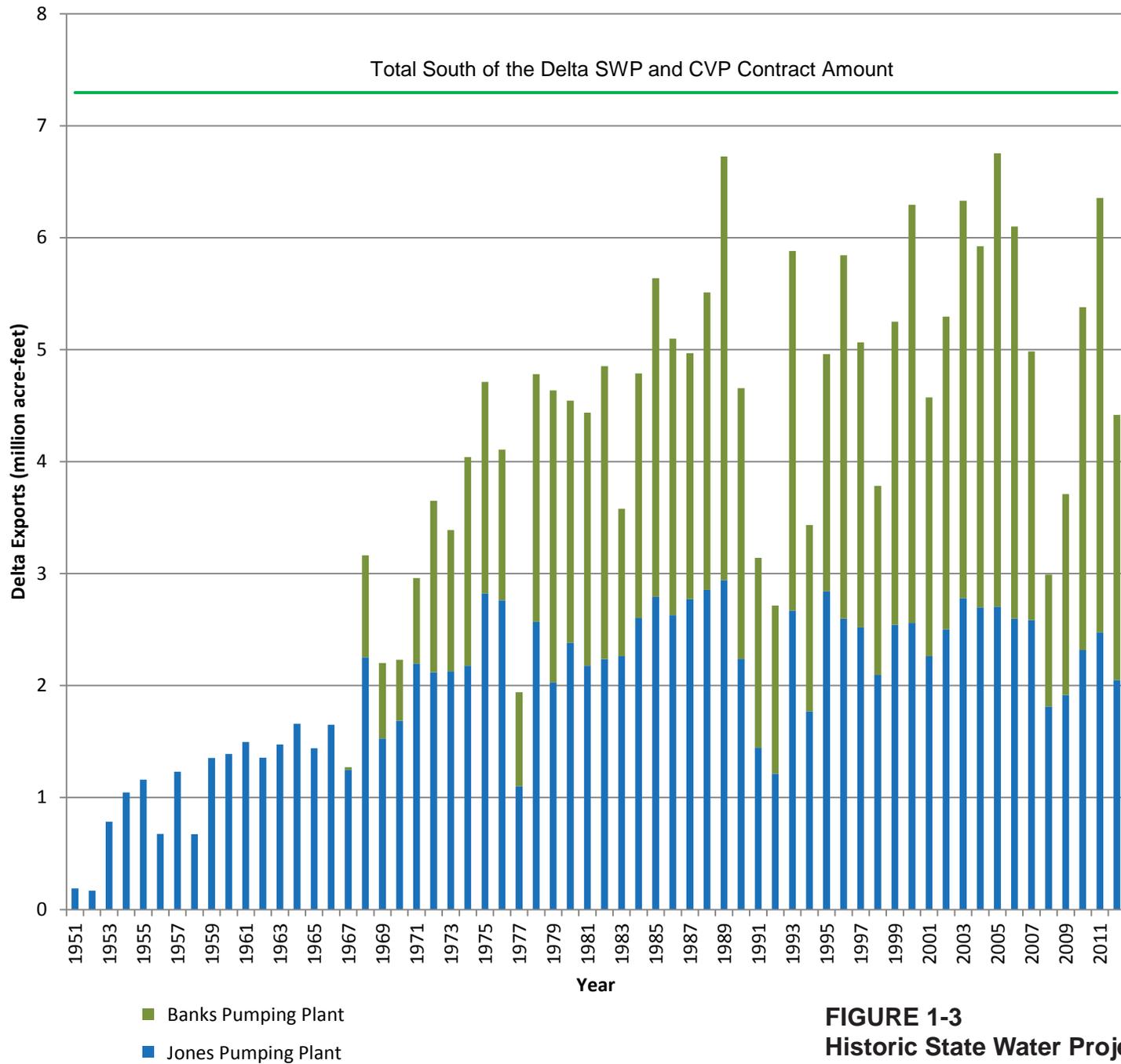
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**FIGURE 1-1**  
**Historic Shasta Lake Storage Operations**  
**End of September Storage with Trend**  
*North-of-the-Delta Offstream Storage Project*

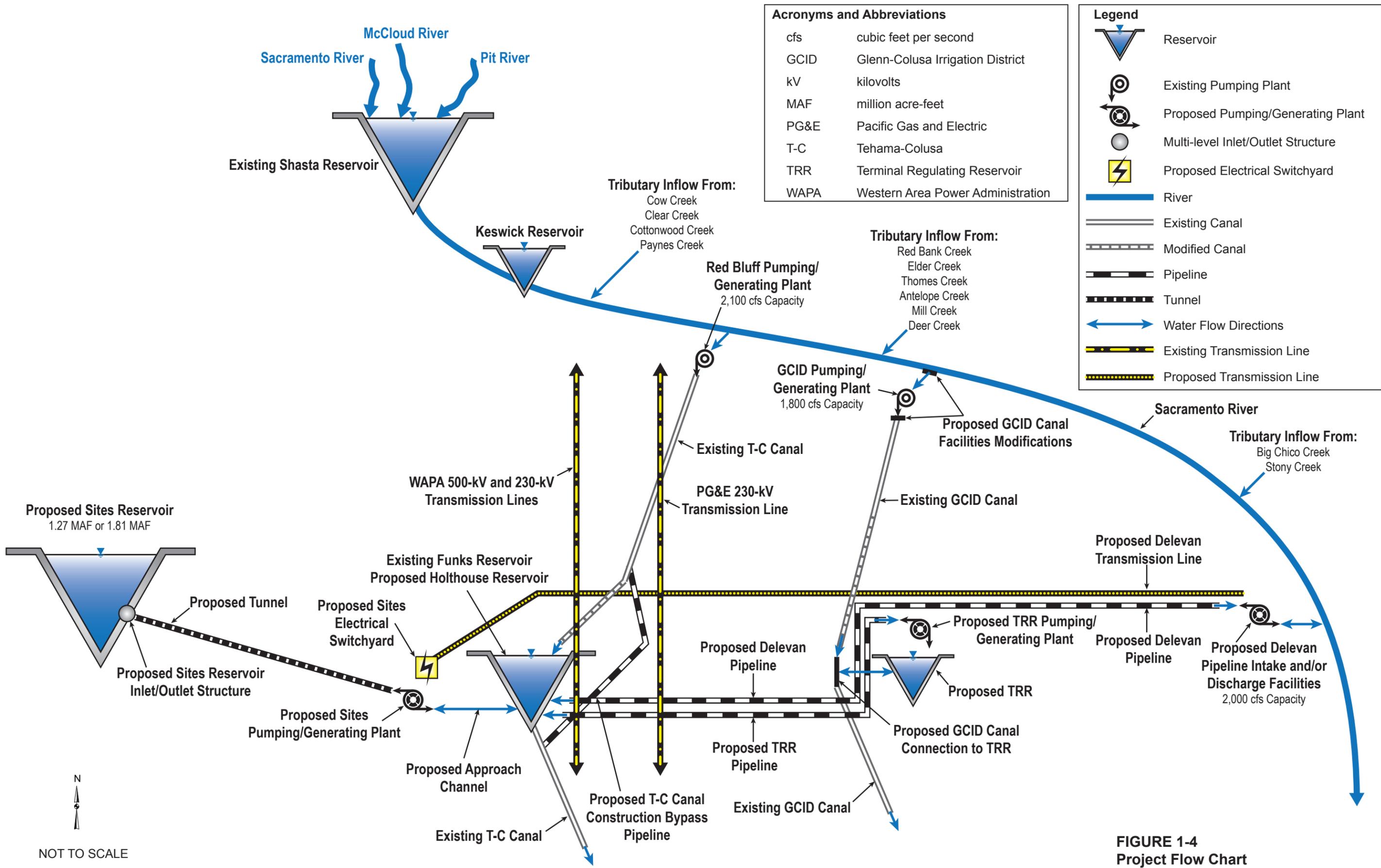


**FIGURE 1-2**  
**Historic Lake Oroville Storage Operations**  
**End of September Storage with Trend**  
*North-of-the-Delta Offstream Storage Project*

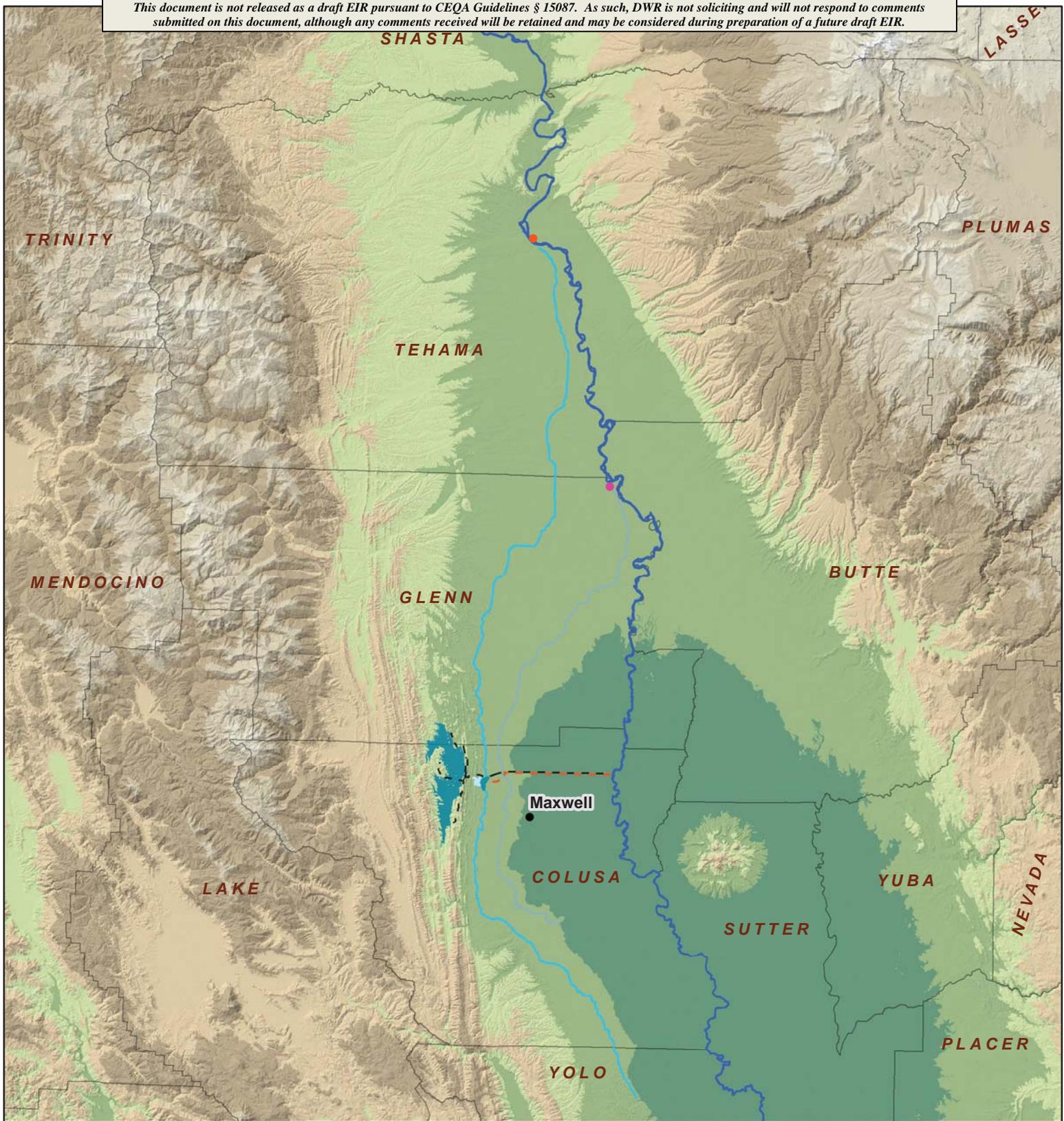


- Banks Pumping Plant
- Jones Pumping Plant

**FIGURE 1-3**  
**Historic State Water Project (SWP) and**  
**Central Valley Project (CVP) Delta Exports**  
*North-of-the-Delta Offstream Storage Project*



**FIGURE 1-4**  
**Project Flow Chart**  
 North-of-the-Delta Offstream Storage Project

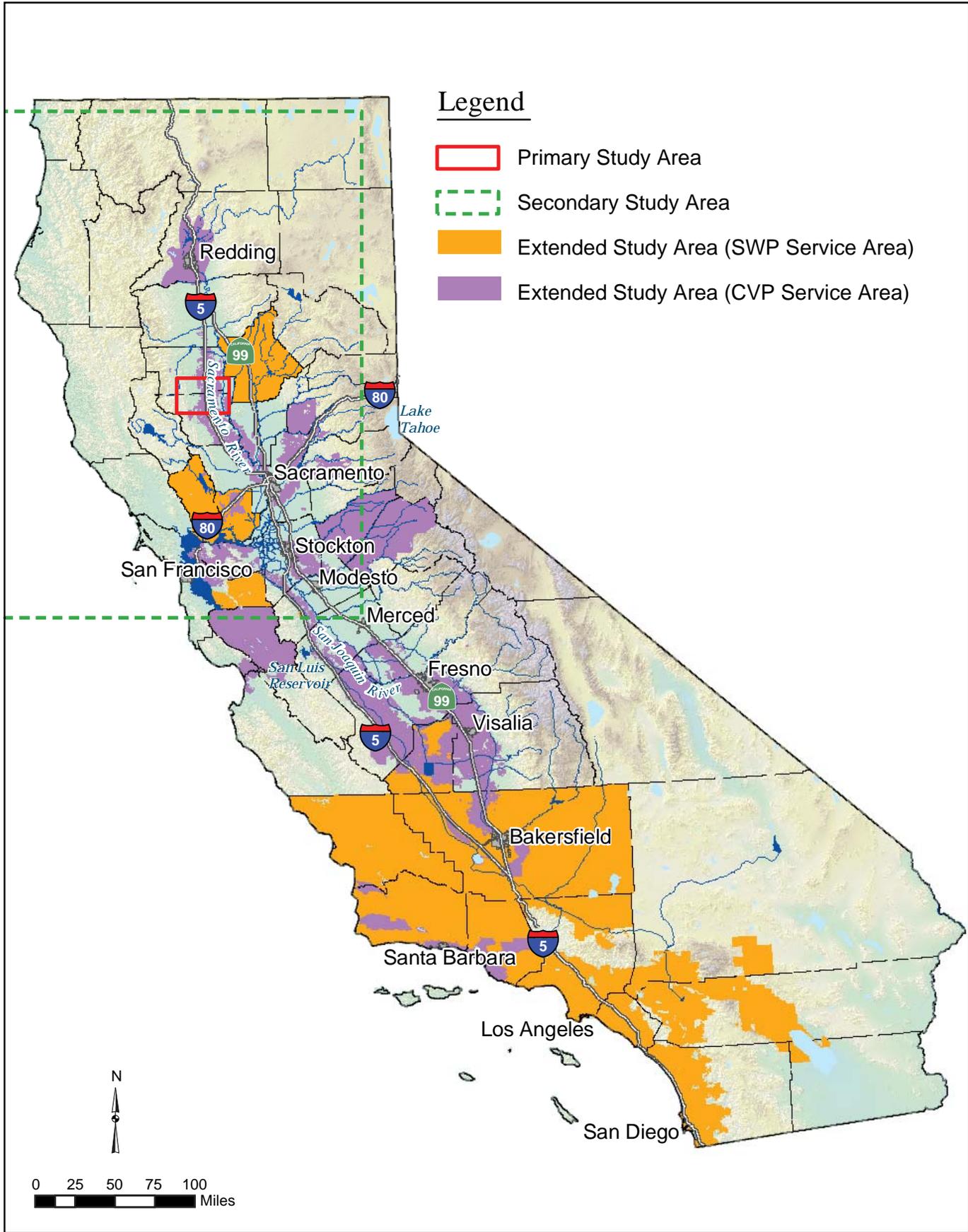


**Legend**

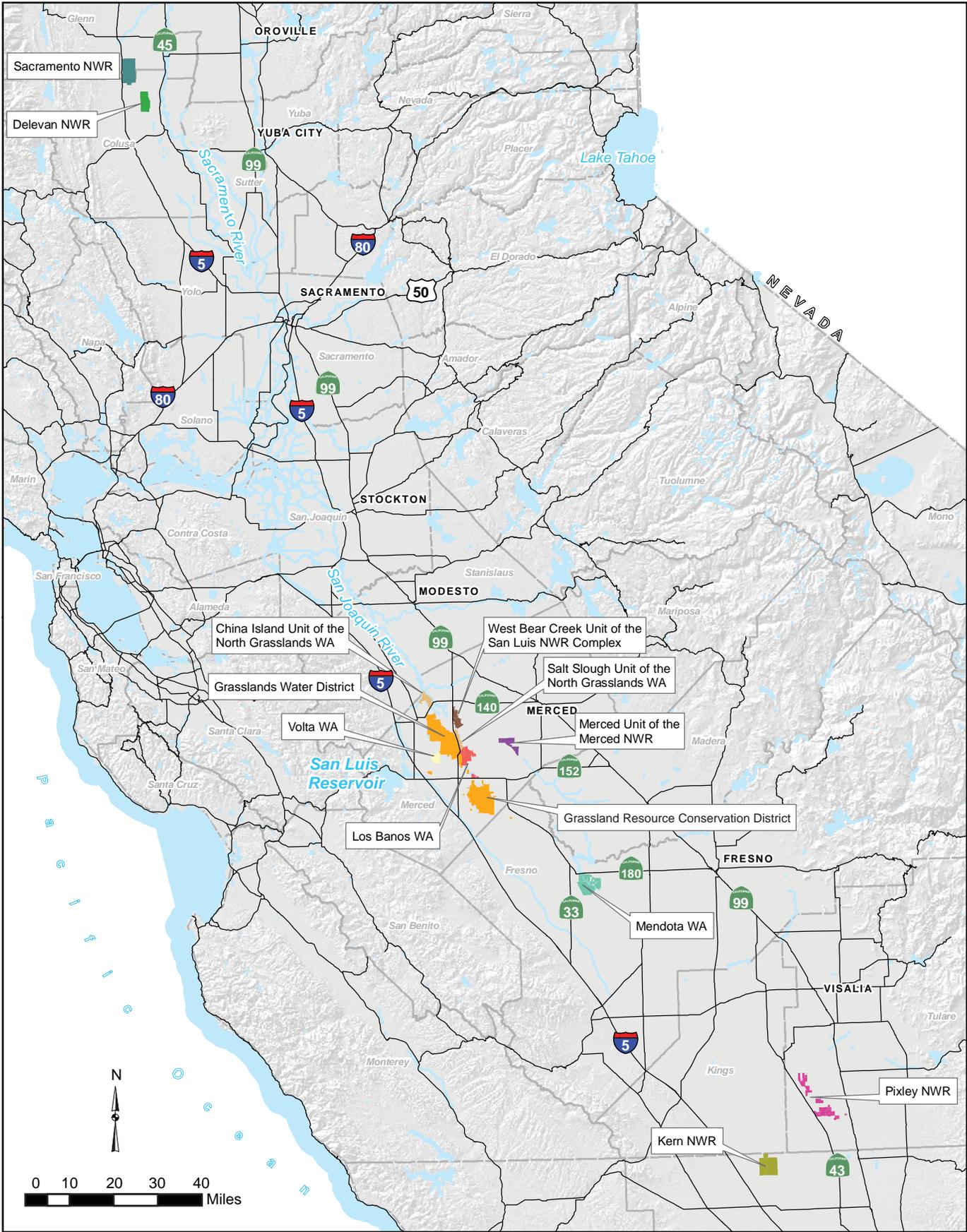
- Red Bluff Pumping Plant
- GCID Canal Headworks Facility
- - - Proposed Delevan Transmission Line
- . - Proposed Delevan Pipeline
- Tehama-Colusa Canal
- Glenn-Colusa Irrigation District Canal
- Proposed Sites and Holthouse Reservoirs
- Existing Funks Reservoir

**FIGURE 1-5**  
**Proposed Project/ Proposed**  
**Action Facilities**  
*North-of-the-Delta Offstream Storage Project*

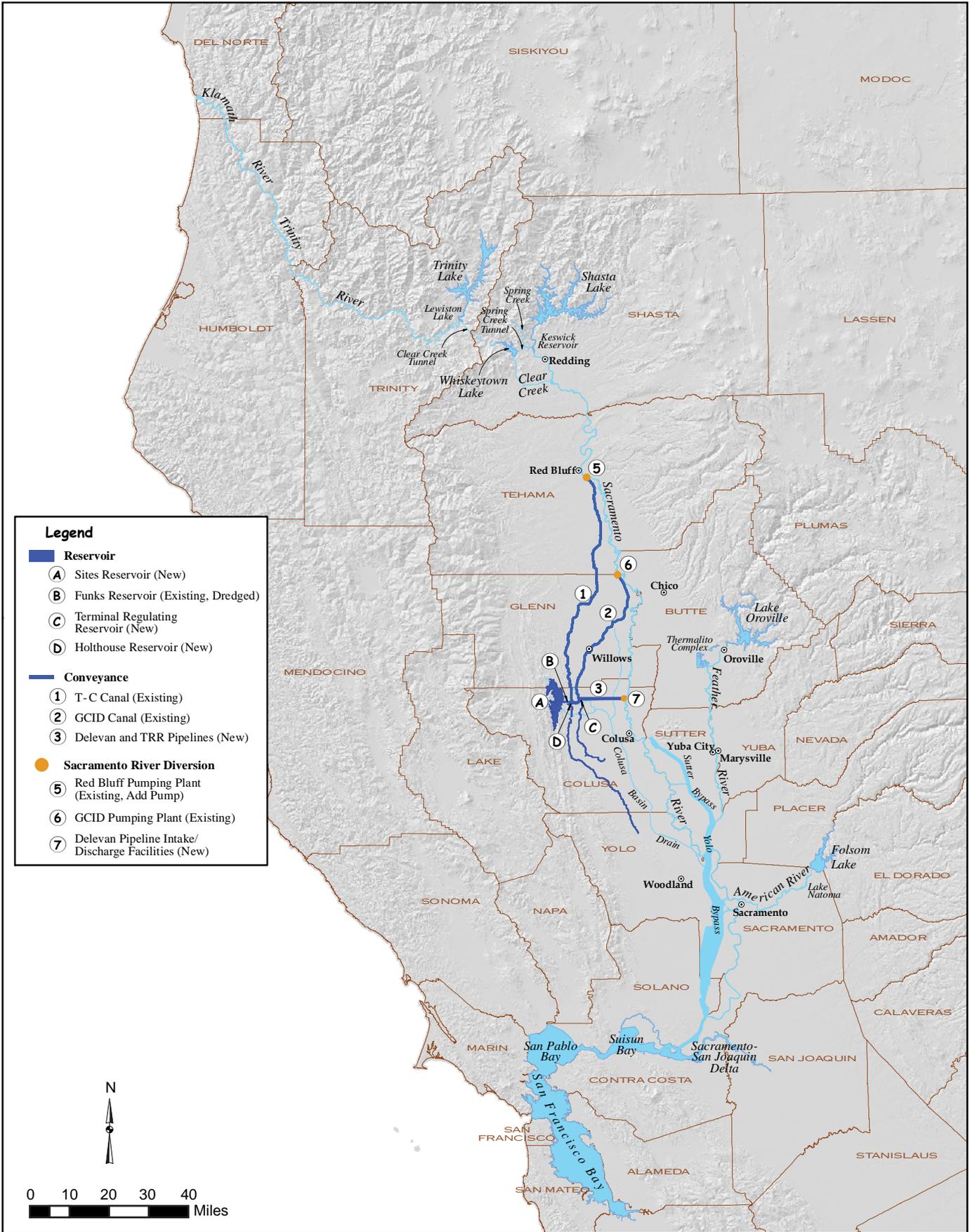




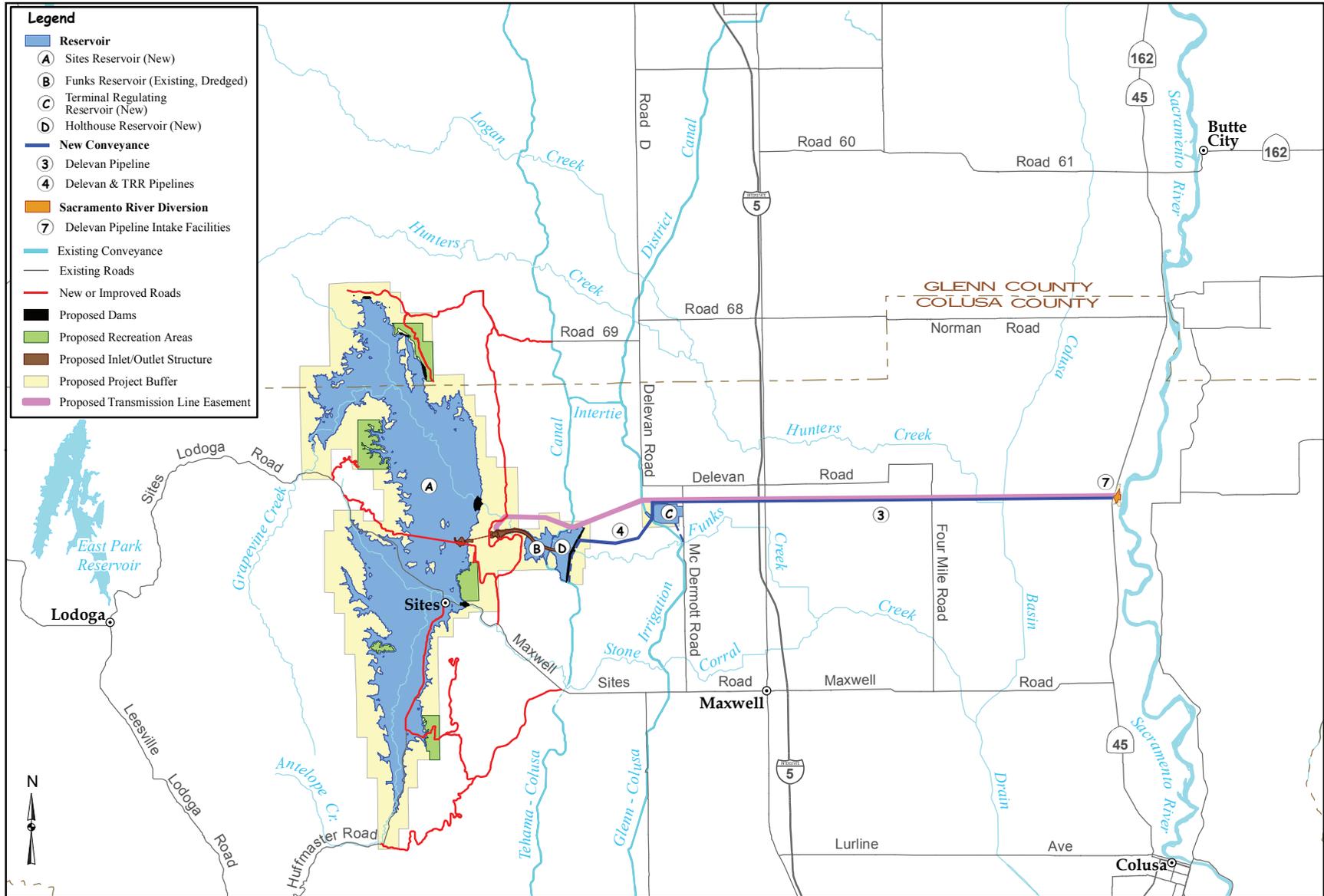
**FIGURE 1-6**  
**Primary, Secondary, and**  
**Extended Study Areas**  
*North-of-the-Delta Offstream Storage Project*



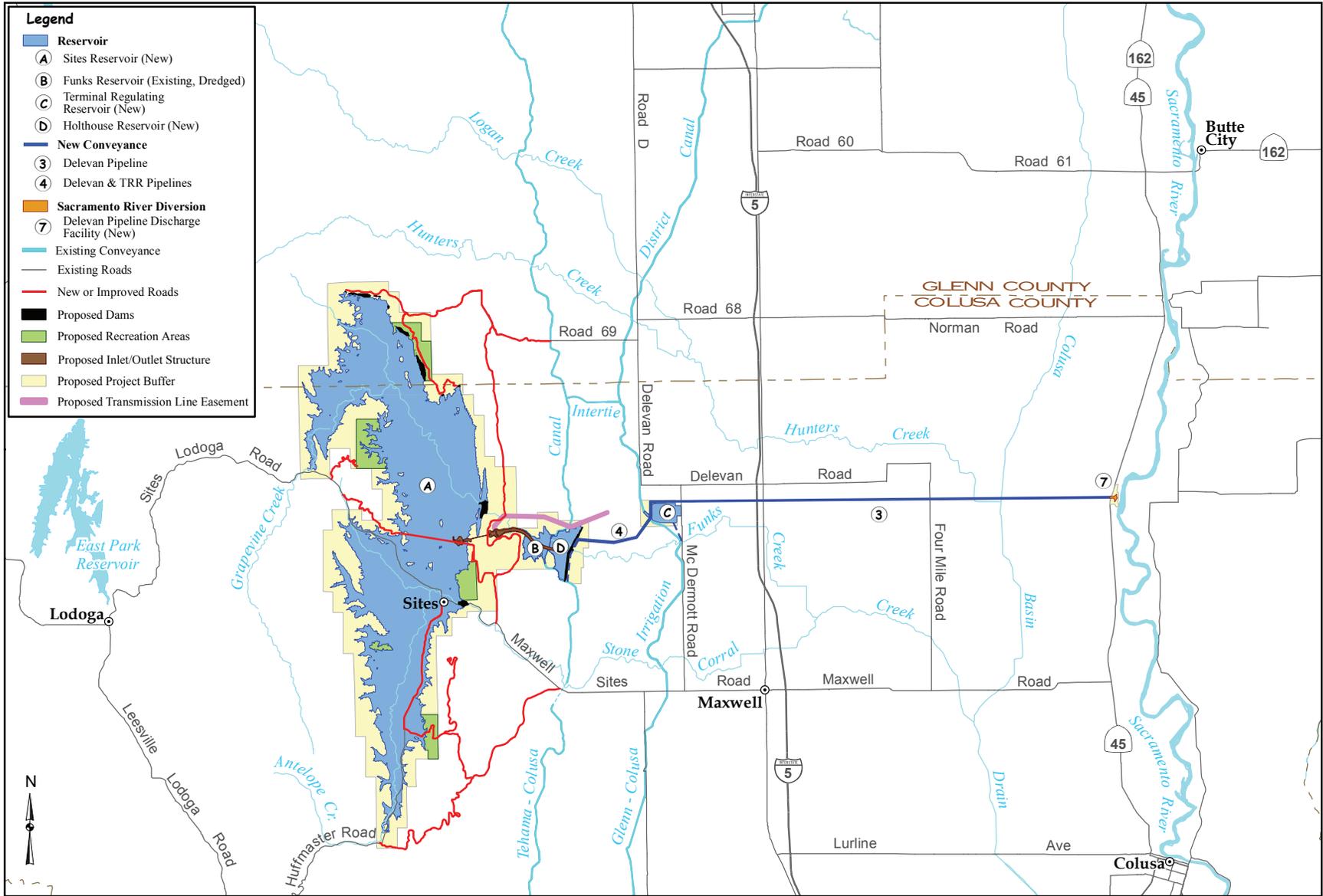
**FIGURE 1-7**  
**Level 4 Wildlife Refuges in the**  
**Extended Study Area**  
*North-of-the-Delta Offstream Storage Project*



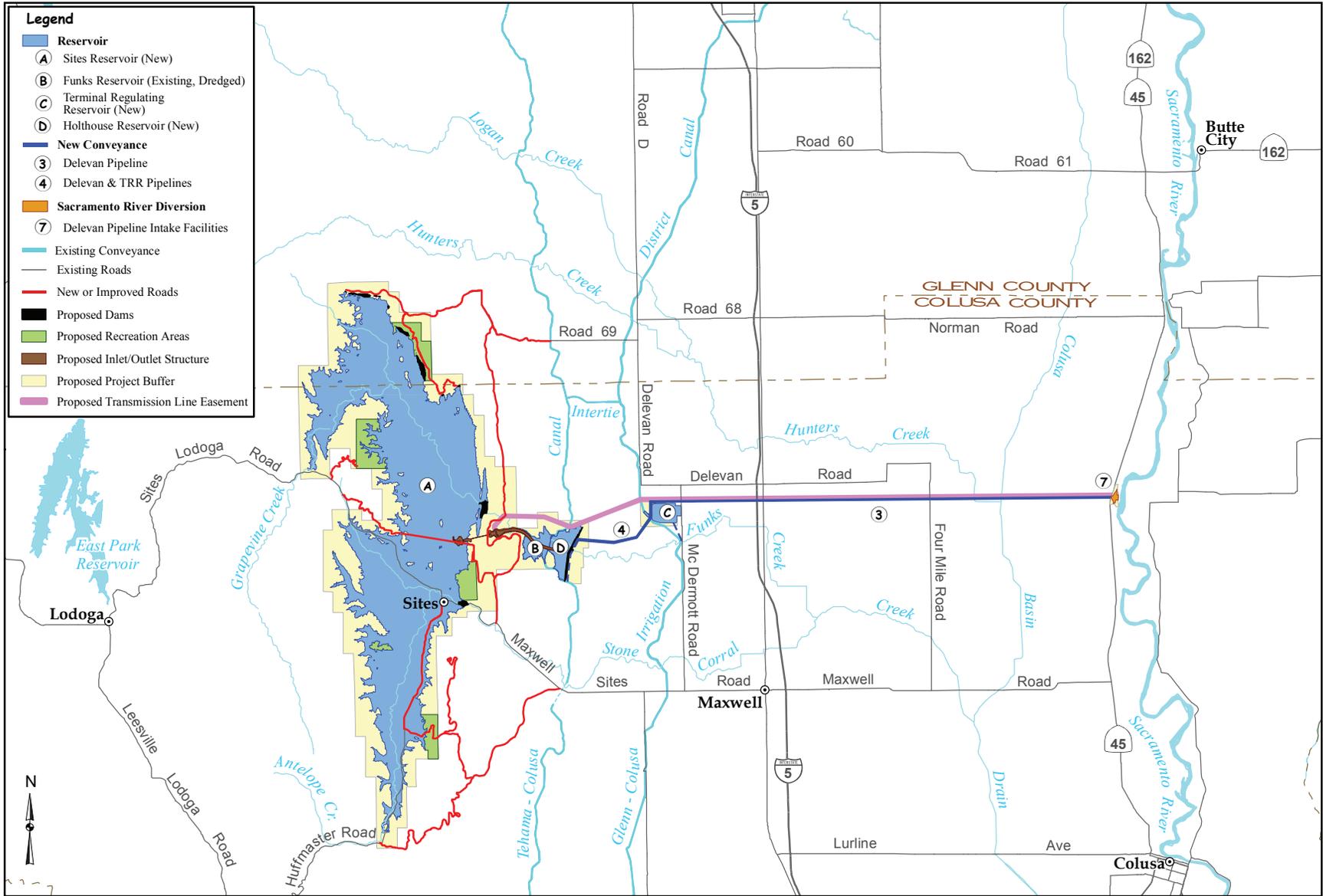
**FIGURE 1-8**  
**Secondary Study Area**  
 North-of-the-Delta Offstream Storage Project



**FIGURE 1-9A**  
**Alternative A Primary Study Area**  
 North-of-the-Delta Offstream Storage Project



**FIGURE 1-9B**  
**Alternative B Primary Study Area**  
 North-of-the-Delta Offstream Storage Project



**FIGURE 1-9C**  
**Alternative C Primary Study Area**  
 North-of-the-Delta Offstream Storage Project