American River Pump Station Project

EXECUTIVE SUMMARY

Final Environmental Impact Statement/ Environmental Impact Report

Placer County Water Agency

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

June 2002

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Introduction

The Final Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the American River Pump Station Project describes the potential adverse and beneficial environmental effects of the three project alternatives: No Action/No Project, Mid-Channel Diversion, and Upstream Diversion. The Mid-Channel Diversion Alternative is the Proposed Project and includes: (1) construction and operation of a year-round pumping facility for the Placer County Water Agency (PCWA) which would divert water from the North Fork American River in the vicinity of the Auburn Dam construction site near Auburn, California; (2) closure of the Auburn Dam bypass tunnel; and (3) restoration of the three-quarter mile reach of the river that was dewatered and otherwise impacted by Auburn Dam construction activities.

Potential environmental effects resulting from construction, operation, and maintenance of the alternatives are described in the Final EIS/EIR, and summarized in this Executive Summary, in accordance with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). The U.S. Department of the Interior (Interior), Bureau of Reclamation (Reclamation) is the lead agency under NEPA and PCWA is the lead agency under CEQA.

Revisions and Corrections to the Draft EIS/EIR

All comments received on the Draft EIS/EIR, and the responses thereto, are presented in Appendix C, Responses to Comments on the Draft EIS/EIR (Volumes 1 and 2) of the Final EIS/EIR. Volume 1, List of Commenters and Master Responses, provides Master Responses that have been prepared for comments on the Draft EIS/EIR which raised the same or similar issues related to certain topics. Volume 2, Individual Comment Letters and Responses, includes the written comments (verbatim) and transcripts of oral comments on the Draft EIS/EIR, paired alongside corresponding responses to significant environmental issues raised during the public comment period. Each comment letter is labeled to correspond with an index list entitled "List of Comments Received on the Draft EIS/EIR," which is located in Section 2.0 of Volume 1. If a comment resulted in a correction or modification to the text that was originally presented in the Draft EIS/EIR, the text has been revised and the changes presented in the Final EIS/EIR. The changes incorporated into the Final EIS/EIR do not alter the conclusions presented in the Draft EIS/EIR.

The Draft EIS/EIR (September 2001) has been modified to reflect revisions and corrections made in response to public and agency comments received during the public review and comment period. These changes to the document do not alter the impact conclusions that were presented in the Draft EIS/EIR. **Table S-1** presents a summary of these revisions. These changes to the report are presented in the Final EIS/EIR to clarify project design, construction and operation features,

incorporate additional detail regarding proposed project features or mitigation measures and to correct typographical errors found during preparation of the final documents. The revisions and corrections included in the Final EIS/EIR have also been incorporated into the material presented in this Executive Summary, as appropriate to the level of detail in each section.

Table S-1
Revisions and Corrections Made to the Draft EIS/EIR

List of Acronyms

- ❑ Updated and corrected list of acronyms to include all acronyms used in Final EIS/EIR and supporting documentation

Chapter 1.0 - Introduction

- ❑ Updated discussion of Public Review of Draft EIS/EIR to reflect extended public review comment period
- ❑ Added List of Revisions and Corrections to the Draft EIS/EIR
- ❑ Added section regarding Final EIS/EIR Process

Chapter 2.0 - Description of Alternatives

- ❑ Expanded discussion regarding selection of alternatives explaining infeasibility of land conservation easements
- ❑ Updated Table 2-2 to correct summary of major features of the alternatives
- ❑ Added new figure depicting major features of the No Action/No Project Alternative
- ❑ Provided cost estimate breakdown for the Proposed Project pump station, bypass tunnel closure, and river channel excavation and public river access features
- ❑ Revised reference to fish screen to reflect change to California Department of Fish and Game (CDFG)-approved design, not Coanda-based design
- ❑ Removed references to use of a standby diesel generator which is no longer proposed
- ❑ Revised description of Public River Access Features to indicate modifications of riverside parking area to include only a turnaround and 3 handicap-accessible spaces, not 20 spaces
- ❑ Revised references to total number of public river access parking area spaces from 70 to 53
- ❑ Provided revised Public River Access Features graphic to show parking area changes
- ❑ Updated description of No Action/No Project Alternative, Proposed Project, and Upstream Diversion Alternative operation and maintenance to explain proposed double-pump operations using the Auburn Ravine Tunnel pump station to avoid potential impacts to Auburn Ravine fish and terrestrial resources
- ❑ Revised discussion of Ralston Afterbay reoperation to clarify nature of activity
- ❑ Made corrections to Table 2-8, Summary of Alternatives Considered and Eliminated from Further Analysis to explain infeasibility of land conservation easements and other suggested alternatives
- ❑ Updated Table 2-9, Anticipated Permits and Approvals for the Proposed Project to reflect project permitting needs based upon coordination with regulatory agencies since release of Draft EIS/EIR

Chapter 3.0 - Affected Environment and Environmental Consequences

General Revisions and Corrections

- ❑ Updated references to Northridge Water District (NWD) to reflect recent name change to Sacramento Suburban Water District (SSWD)
- ❑ Updated references to Citizen's Utilities Water Company to reflect recent name change to California-American Water Company (CAWC)
- ❑ Corrected discussion of SSWD (formerly NWD) water supply sources
- ❑ Updated discussion of Auburn Recreation District proposed American River campground area
- ❑ Provided additional explanation regarding placement of model output table and graphic results in Appendix H to the Draft EIS/EIR (also provided in resource sections containing diversion-related analyses)

Table S-1 (Continued)
Revisions and Corrections Made to the Draft EIS/EIR

Water Supply and Hydrology

- Updated information pertaining to PCWA's Water Conservation Program

Fish Resources and Aquatic Habitat

- Revised description and evaluation of Auburn Ravine fish resources
- Deleted references to National Marine Fisheries Service (NMFS) critical habitat designations for Central Valley steelhead and spring-run chinook salmon due to recent withdrawal of such designations by NMFS
- Updated discussion of backwater effects at Tamaroo Bar
- Updated and revised mitigation measures to reflect individual agency responsibilities and in response to changes related to (1) project construction no longer requires use of cofferdam, therefore related measures would not be needed; and (2) updated method to evaluate fish screen performance based on further consultation with CDFG fish screen experts

Terrestrial Resources

- Provided additional information regarding non-listed species at the project site, per request of U.S. Fish and Wildlife Service (USFWS) Draft Coordination Act Report recommendations
- Added account of potential areas of habitat affected by the Proposed Project, per request of USFWS Draft Coordination Act Report recommendations
- Incorporated findings of recent Red-Legged Frog Habitat Assessment and Site Survey performed at request of USFWS as part of federal Endangered Species Act (ESA) consultation
- Updated and revised mitigation measures to reflect individual agency responsibilities

Recreation

- Included additional detail regarding existing project area recreation uses as supplied by the California Department of Parks and Recreation (CDPR)
- Revised description and analyses related to modification of the Public River Access Features incorporated into the Proposed Project by the lead agencies and CDPR
- Developed revised recreation trail map for project area
- Updated discussion of recreation trail access impact during construction due to changed approach in mitigation
- Revised discussion of Auburn-to-Cool Trail impact and responsibilities for mitigation of impact under Proposed Project
- Incorporated additional information related to backwater effects at Tamaroo Bar rapid
- Provided further clarification of the Middle Fork American River whitewater boating impact under all alternatives
- Updated and revised mitigation measures to identify individual agency responsibilities and in response to changes in project features

Visual Resources

- Updated impact discussion in response to changes in Public River Access Features
- Revised mitigation measures to identify individual agency responsibilities and to reflect change in construction materials of pump station housing

Cultural Resources

- Updated discussion of cultural resources laws and regulations applicable to the project to reflect priority of federal laws
- Updated mitigation measures to identify individual agency responsibilities and in response to recent efforts related to Programmatic Agreement with the State Historic Preservation Office (SHPO)

Table S-1 (Continued)
Revisions and Corrections Made to the Draft EIS/EIR

Power Supply

- ❑ Corrected errors in text in response to comments

Land Use

- ❑ Incorporated discussion of growth issues and description of lead agencies responsibilities

Geology and Soils

- ❑ Updated discussion of mitigation measures to incorporate recommended measures under Public Health and Worker Safety program

Transportation and Circulation

- ❑ Incorporated information from supplemental Traffic Study and additional coordination with City of Auburn Public Works Department to evaluate potential impacts at Maidu Drive/Burlin Way intersection
- ❑ Updated discussion of mitigation measures to identify individual agency responsibilities and incorporate recommendations for Construction Traffic Management Plan and payment of mitigation fees to City of Auburn

Air Quality

- ❑ Updated analysis of public river access-related traffic based on new emission evaluation information from Placer County and El Dorado County air pollution control districts
- ❑ Added information describing particulate matter less than 2.5 microns in size ($PM_{2.5}$), as requested by U.S. Environmental Protection Agency (EPA)
- ❑ Provided discussion of project alternatives' compliance with federal general conformity requirements, as requested by U.S. EPA
- ❑ Incorporated additional information and explanation of analysis approach of sensitive receptors related to El Dorado County and the community of Cool, as requested by El Dorado County Air Pollution Control District (APCD) and others
- ❑ Removed references to diesel generator as one is no longer included in project alternative activities
- ❑ Updated and revised discussion of mitigation measures to identify individual agency responsibilities

Noise

- ❑ Updated discussion of public river access traffic-related noise sources
- ❑ Revised mitigation measures to identify individual agency responsibilities

Public Health and Worker Safety

- ❑ Added new information relative to Fire Management
- ❑ Incorporated geology and soils mitigation measures relative to slope stability, worker safety during construction and public safety during use of project area under Proposed Project
- ❑ Revised mitigation measures to identify individual agency responsibilities

Other Impact Considerations

- ❑ Corrected information presented under Essential Fish Habitat (EFH) to more specifically identify discussion relative to fall-run chinook salmon
- ❑ Expanded discussion of Short-term Uses of the Environment Versus Long-Term Productivity
- ❑ Added discussion of Climate Change, per request of U.S. EPA
- ❑ Revised ESA Compliance section to reflect (1) NMFS retraction of steelhead and spring-run chinook salmon critical habitat designations; (2) correction of inadvertent reference to incidental take; (3) update to summary of consultation to date; (4) addition of PCWA's proposed Auburn Ravine monitoring program as a conservation measure; and (5) incorporation of corrections to conclusion and determination

Table S-1 (Continued) Revisions and Corrections Made to the Draft EIS/EIR
Chapter 4.0 - Consultation and Coordination ❑ Updated discussions of resource agency ESA consultations and other coordination ***Chapter 5.0 - List of Preparers*** ❑ Added additional names and updated area of participation to reflect efforts undertaken to complete the Final EIS/EIR and related activities
Chapter 6.0 - References ❑ Incorporated additional references cited and personal communications held during preparation of the Final EIS/EIR

Project Location

The location of the proposed pump station and related facilities is on the North Fork American River within the Auburn Dam Project construction area, east of the City of Auburn. The project area involves lands within Placer and El Dorado counties, which are bounded by the American River. Reclamation owns and manages these lands within the Auburn Dam Project area. CDPR, through an agreement with Reclamation, is responsible for the oversight and management of the lands as part of the Auburn State Recreation Area (Auburn SRA). Increased water supply diversions from the North Fork American River under the selected alternative would influence future operation of several Central Valley Project (CVP) components, including Folsom, Shasta, and Trinity reservoirs and the Sacramento-San Joaquin River Delta (Delta). Changes in CVP operations have the potential to influence State Water Project (SWP) operations at Oroville Reservoir. These water bodies are included in the regional study area for the project. PCWA would deliver the American River water within its Service Area Zones 1 and 5 and possibly to a portion of CAWC located within Placer County.

Figure S-1 illustrates the regional setting extending from the upper Sacramento River and upper American River, south to the Delta. **Figure S-2** depicts the project study area relative to cities, counties, transportation corridors, and waterways of the region. **Figure S-3** shows the local project area and site. **Figure S-4** depicts the PCWA service area that would receive American River water for municipal and industrial (M&I) and agricultural uses.

Project Purpose

The purpose of the project is threefold: (1) to provide facilities to allow PCWA to convey its Middle Fork Project (MFP) water entitlement to the Auburn Ravine Tunnel to meet demands within its service area; (2) to eliminate the safety issue associated with the Auburn Dam construction bypass tunnel; and (3) to allow for all pre-construction beneficial uses of water in

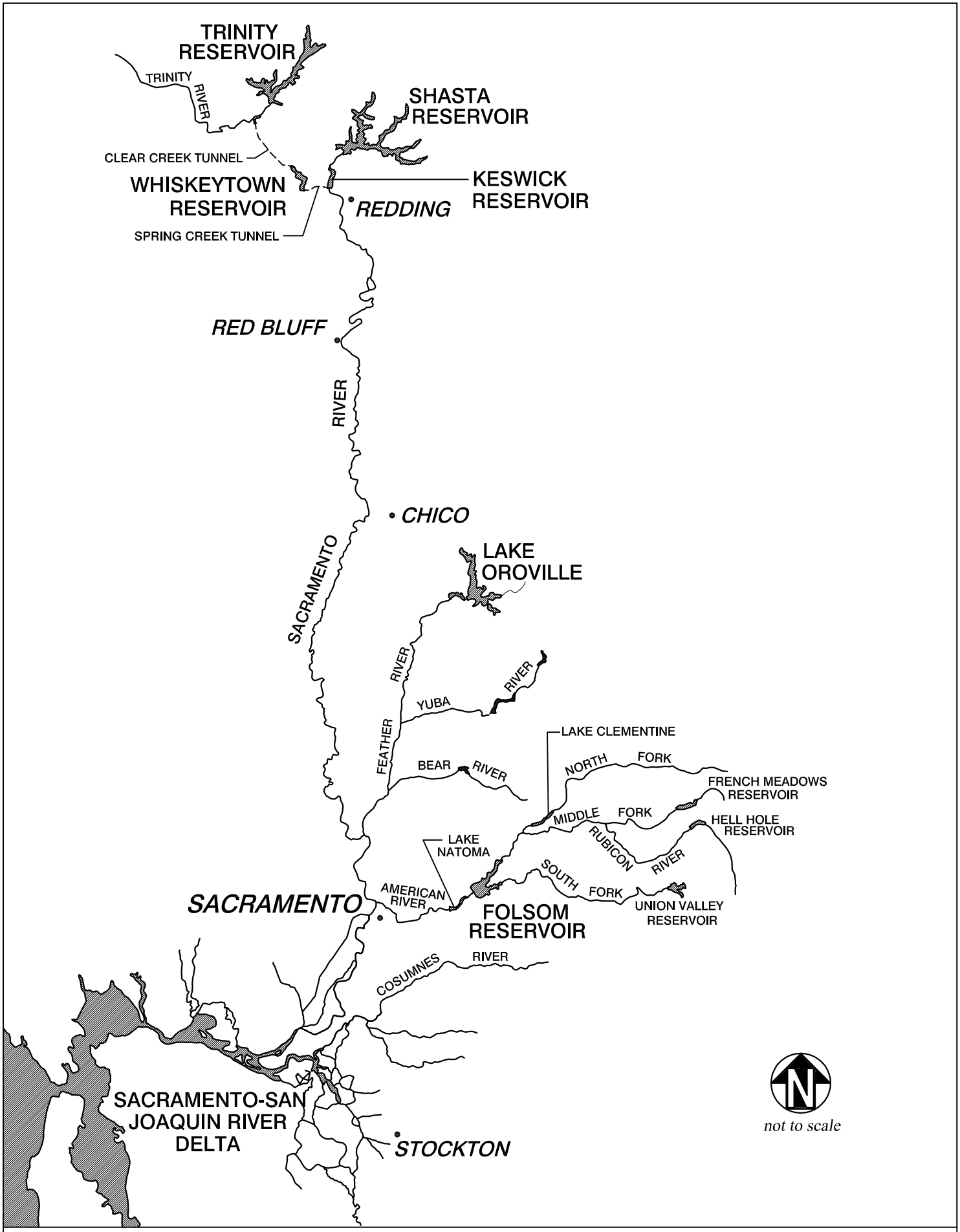


Figure S-1 Regional Setting

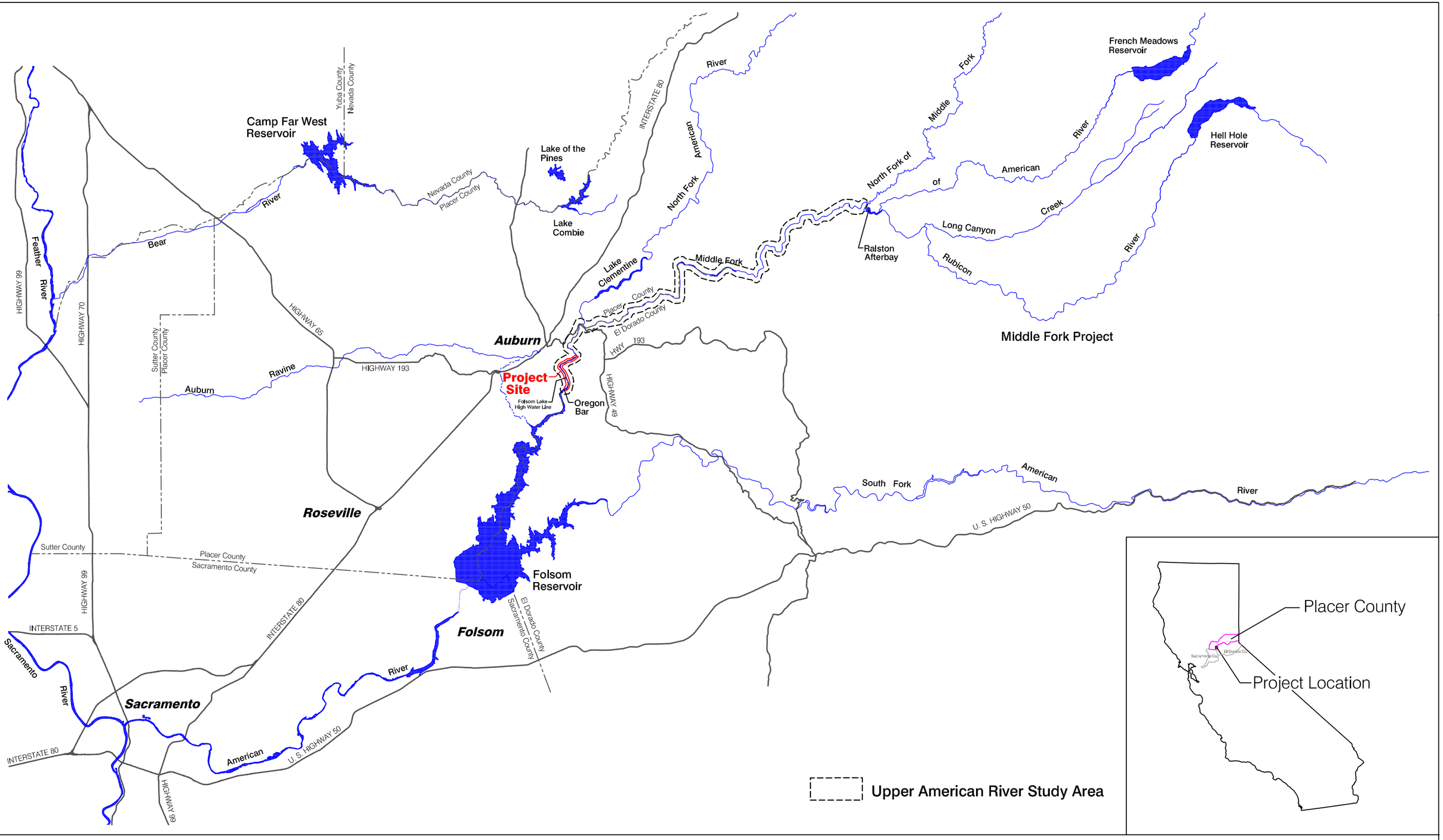


Figure S-2 Project Area Setting

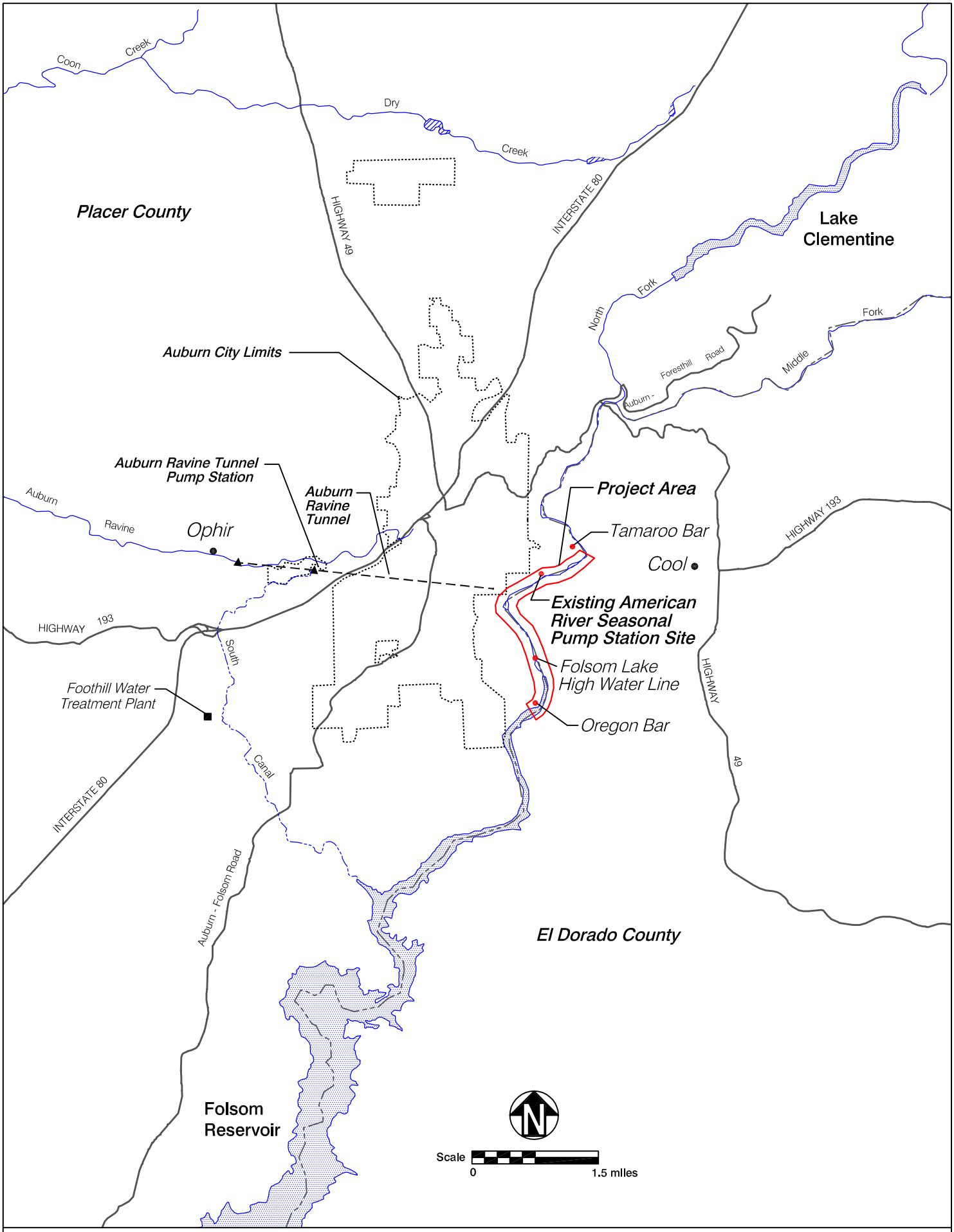


Figure S-3 Project Area

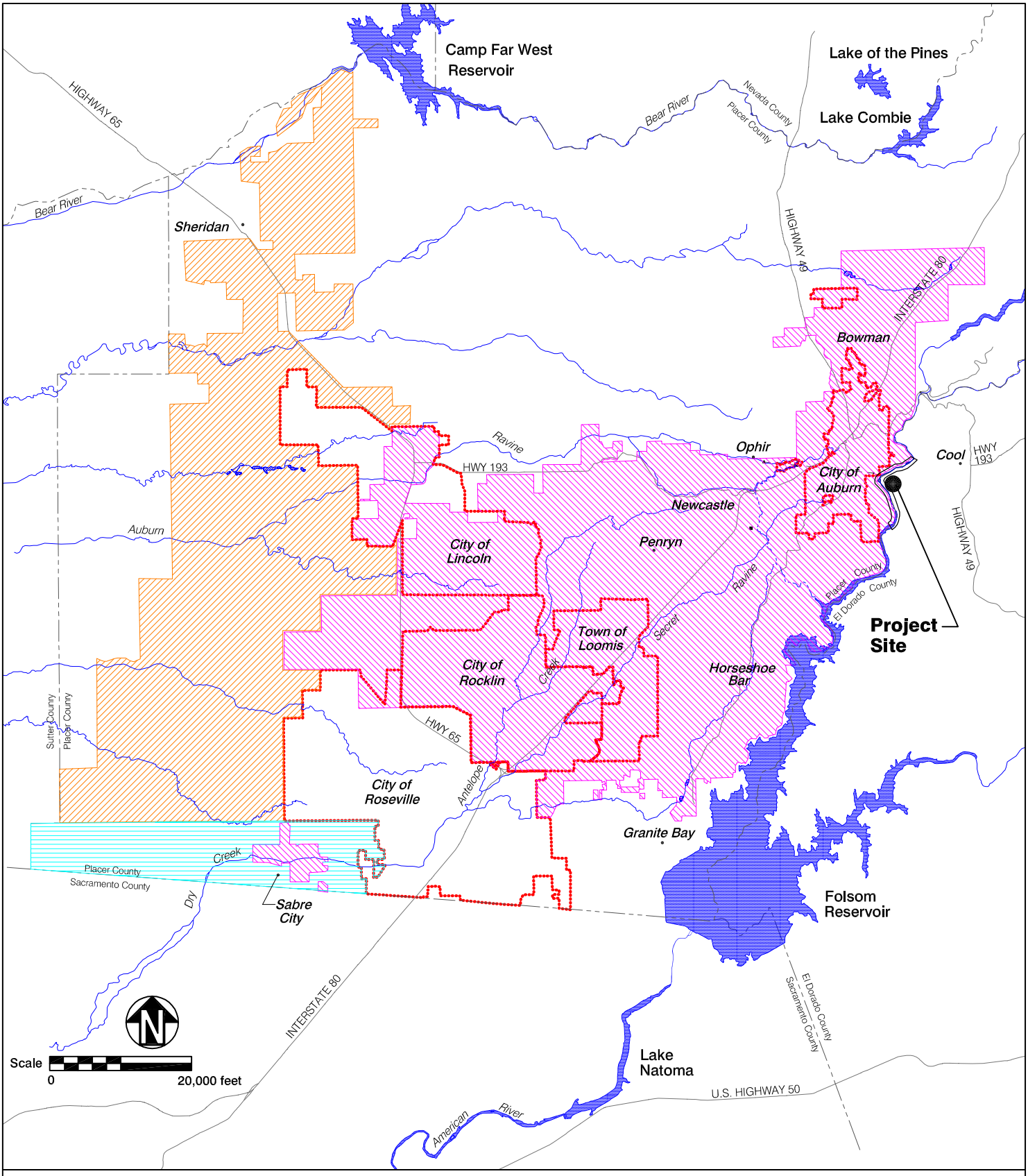


Figure S-4 PCWA's Water Service Area to be Served by the American River Pump Station Project

what is now the dewatered river channel, including recreation, navigation, and other instream beneficial uses. Each of these elements is discussed in the Final EIS/EIR, Chapter 1.0, Section 1.3, Project Needs and Objectives.

Project History

In 1965, Congress authorized the construction of Auburn Dam on the North Fork American River near the City of Auburn. Construction began in 1967 and included a cofferdam, a tunnel through a ridge to bypass the river around the construction area (referred to as the bypass tunnel), excavation for the Auburn Dam foundation (also referred to as the keyway), and removal of a permanent pump station owned by PCWA. Because of concerns over seismic safety, heightened by the 5.7 magnitude (Richter scale) Oroville earthquake of August 1, 1975, construction of Auburn Dam was suspended in 1977.

PCWA Original Pump Station

Prior to the initiation of construction of Auburn Dam, PCWA built a 50 cubic feet per second (cfs) pump station on the North Fork American River to convey PCWA water supplies from its MFP to the Auburn Ravine Tunnel for delivery to PCWA's service area. However, before PCWA's operations began, the pump station was removed by Reclamation to facilitate construction of Auburn Dam. Pursuant to a Land Purchase Agreement with PCWA, described below, Reclamation has since installed a seasonal pump station annually as needed by PCWA to meet water supply demands.

Land Purchase Agreement

Before suspending Auburn Dam construction, Reclamation sought a Land Purchase Agreement with PCWA to acquire canyon lands needed for the Auburn Dam Project. PCWA entered into a Land Purchase Agreement in 1972 with Reclamation under the threat of condemnation. As part of the Land Purchase Agreement, PCWA's 50 cfs pump station was removed to facilitate construction of Auburn Dam subject to Reclamation's provision of an interim pumping facility or alternative water supply until Auburn Dam was completed. As the Auburn Dam Project was designed at that time, water from the reservoir was to flow by gravity into the Auburn Ravine Tunnel to provide PCWA its water entitlements, thereby eliminating the need for a pump station at the American River location. As stipulated in the Land Purchase Agreement:

[Article 11] A *"...the United States will provide a temporary pumping facility in the event the Vendor [PCWA] demonstrates a need for water, to be delivered into the existing tunnel intake structure at the intake portal of the Auburn Ravine Tunnel, or at its option, the United States may provide water from an alternative source, provided delivery is made at a point suitable for its intended use."*

The Land Purchase Agreement obligated Reclamation to deliver up to 25,000 acre-feet annually (AFA) at a rate of up to 50 cfs.

Pursuant to the Land Purchase Agreement, the United States, through Reclamation, has delivered water through the installation and removal of a seasonal pump station on an as-needed basis. The first time PCWA required access to its MFP water rights to meet system demands was during the drought of 1977. In response to PCWA's request for water under the Land Purchase Agreement, Reclamation constructed a pump station capable of delivering approximately 50 cfs using pumps salvaged from PCWA's original pump station. Due to the location of the installation, the pumps have to be removed before winter each year to prevent damage due to inundation from high river flows.

Beginning in 1990, PCWA has required access to its MFP water supply annually to meet its system demands under a variety of operating conditions. Reclamation has responded with the seasonal installation and removal of PCWA's original pumps at the same location as the 1977 installation. However, the seasonal pumps do not fully meet PCWA's water supply requirements, are not reliable, and have become increasingly expensive to install and maintain.

Reclamation can deliver the MFP water supply to PCWA only from approximately April to November. Late-fall, winter, and spring MFP water supplies are not accessible due to the potential for high river flows that can inundate the seasonal pump station. Further, because of limitations on the pumping capacity of the existing facilities (50 cfs) and the timing of seasonal diversions as compared to the pattern of demands, the maximum annual diversion for the seasonal pump station is approximately 19,300 acre-feet (AF). The seasonal pump station no longer permits Reclamation to provide PCWA with a reliable water supply when and where required to meet PCWA's system demands in accordance with the Land Purchase Agreement.

Reclamation Management of Auburn Dam Project Site

Auburn Dam remains an authorized federal project and is considered by some to be feasible. In 1992 and 1996, there were unsuccessful Congressional initiatives to modify and restart the Auburn Dam Project.

Since suspension of Auburn Dam construction in 1977, Reclamation has been managing the Auburn Dam site on an interim basis. Existing site conditions present Reclamation with several resource management issues and opportunities, including public safety, access, and recreation management[1]. In 1994, Reclamation undertook a study to address these issues, together with the installation of a year-round pump station for PCWA. The results were published in a report entitled *Preliminary Concept Plan, Restoration and Management of the Auburn Dam Site* (1996 Concept Plan).

Reclamation's 1996 Concept Plan identified several interests and options related to improving public safety, access, and recreation at the Auburn Dam construction site. The options identified included closure of the bypass tunnel, restoration of the river through the dewatered channel, and recreation access at the site. Upon completion of the 1996 Concept Plan, Reclamation initiated a concerted engineering and environmental planning effort to implement a project based on the findings of the report.

[1] CDPR, through an agreement with Reclamation, provides management of the Auburn SRA activities including the project area.

Early in the planning effort, members of the public and certain interest groups supported inclusion of the 1996 Concept Plan site restoration and river bypass tunnel closure measures. In late 1997, Reclamation undertook a Value Planning Study to further evaluate the options for a year-round pump station, restoration of the Auburn Dam construction site, and tunnel safety consistent with the 1996 Concept Report. However, following publication of the results of the 1997 study, it appeared that critical Congressional support for the project would not be forthcoming if the project included blocking the Auburn Dam construction bypass tunnel or restoring the river channel, because the Auburn Dam remains a federally authorized project. Therefore, during 1998 and into 1999, Reclamation and PCWA concentrated on designing a pump station that would not require the bypass tunnel to be closed or the channel restored.

State of California Interest

In September 1999, the California State Attorney General's Office sent the Secretary of the Interior a letter indicating that, in the Attorney General's view, the Auburn Dam construction bypass tunnel diversion was in violation of the 1992 Central Valley Project Improvement Act (CVPIA), the Reclamation Act of 1902, and California's Public Trust Doctrine. In support of these contentions, the Attorney General's office noted that the river has been diverted with no present or foreseeable beneficial use, to the detriment of the values of the natural resources of the North Fork American River. The claimed legal obligations outlined in the letter provided the impetus and guidance that determined how the American River Pump Station Project evolved. From that point forward, the design included tunnel closure, restoring the river to its channel and allowing pre-dam construction beneficial uses of the river as primary elements of the Proposed Project (Mid-Channel Diversion Alternative).

Closure of the bypass tunnel would remove the existing hazard to river use; CDPR and Reclamation would no longer have need to prohibit public use of this section of the river. Once restored, the river would be expected to be characterized within the Class I to Class III whitewater categories (easy to moderately difficult rating). Because the river conditions created by restoring the river channel through the project area would be appealing to boaters with a wide range of skills, the State of California Resources Agency expressed concern regarding potential public health and safety issues related to such uses. Specific concerns included the current lack of suitable take-out points along the river between the confluence of the North Fork and Middle Fork (upstream) and Rattlesnake Bar at Folsom Reservoir (downstream), a nine-mile stretch. Under certain flow conditions, the upstream extent of Folsom Reservoir creates a two- to five-mile stretch of flat water that would be difficult to paddle, particularly for less experienced boaters. PCWA has arranged with Pacific Gas and Electric Company (PG&E) to make water releases from the Oxbow Powerhouse/Ralston Afterbay that support whitewater boating activities in the Middle Fork American River during summer months. Morning releases reach the North/Middle Fork confluence area by mid- to late afternoon. Without adequate locations to exit the river, boaters could become stranded late in the day or be left without a reasonably accessible river take-out.

Reclamation and the California Resources Agency entered into a Memorandum of Agreement (MOA) (Appendix A of the Draft EIS/EIR) to address these concerns. Reclamation and PCWA coordinated with representatives from the State Attorney General's Office, CDPR and CDFG to develop a pump station project alternative that would incorporate the additional project objectives

related to closing the bypass tunnel and returning river flow to the North Fork American River channel through the project site.

Project Needs and Objectives

PG&E's Drum-Spaulding Project on the Yuba/Bear River and PCWA's MFP on the American River are two sources of water currently available to PCWA to serve areas in western Placer County. PCWA has a contract with PG&E for 100,400 AFA of Drum-Spaulding Project water, at a maximum delivery rate of 244 cfs, to serve Zone 1, encompassing the communities of Auburn, Loomis, Rocklin, Lincoln, Newcastle, Penryn, and parts of Roseville. PCWA also holds existing appropriative rights to divert 120,000 AFA from the MFP under Water Right Permits numbers 13856 and 13858, as authorized by the State Water Resources Control Board (SWRCB). PCWA uses Drum-Spaulding Project water supplies first to meet service area demands. PCWA then uses MFP supplies from the American River to satisfy demands not met by the Drum-Spaulding Project water supplies, or as needed to provide back-up supplies when the Drum-Spaulding project is not operating.

A third PCWA water entitlement is through a water service contract most recently amended in February 2002 with Reclamation. The February 2002 amendment to the contract modified the original maximum water allotment of 117,000 AFA and limits the amount of water available to PCWA to 35,000 AFA prior to completion of Auburn Dam.

The project evaluated in the Final EIS/EIR involves only PCWA's proposed increased diversion of its existing American River MFP water entitlement at the pump station site near Auburn. Separate environmental documentation will be required to evaluate the effects of PCWA's diversion of water under its CVP water service contract with Reclamation.

Auburn Dam Bypass Tunnel Safety

As part of the original Auburn Dam construction work, a cofferdam and bypass tunnel were constructed. The cofferdam was breached by high flows in 1986, depositing millions of cubic yards of debris in the downstream channel. The bypass tunnel remains open and passes the entire flow of the American River at normal flow rates. Due in part to the sediment deposition from the eroded cofferdam, it is common for the downstream end of the tunnel to be submerged while the upper end is open. Although the river portion of the construction site is officially closed to the public, it is known that some people enter the area, and could be seriously injured or killed if they enter the bypass tunnel. Both Reclamation and the State of California believe this safety issue needs to be corrected.

River Restoration

Reclamation and the State of California wish to restore the dewatered reach of the river channel, and to manage the site in a safe and environmentally sound way. Their objectives include restoring the river to a condition that would provide the same biological, hydrologic, and recreation functions, including public use, as it did prior to Auburn Dam construction.

Public River Access

As stated in the MOA between Reclamation and the State of California, the parties believe that an increase in recreational navigation and use of the river in the project area would be a reasonably foreseeable result of the Proposed Project's closure of the bypass tunnel and rewatering of the North Fork American River, and further believe that an appropriate regulated public access to the river to address public health and safety, resource protection, and emergency purposes would be warranted. The MOA stipulates that the public access features would be rustic with minimal site improvements as needed only to serve the stated access and management objectives. The proposed public river access features were developed by CDPR, with input from the lead agencies and CDFG.

Consistent with the terms of the MOA, CDPR provided a preliminary concept for the public river access features to be developed as part of the American River Pump Station Project (Proposed Project). The preliminary features described in the Draft EIS/EIR included a gated entrance and staffed booth, access roadway improvements, parking areas, pedestrian/equestrian trail improvements and sanitation facilities (trash containers and restrooms). The preliminary design was modified during preparation of the Final EIS/EIR. Although most features remain as described in the Draft EIS/EIR, CDPR and the lead agencies have reduced the total number of parking spaces that would be provided at the site by modifying the riverside parking lot to consist of a vehicle turnaround area with only three handicap accessible parking spaces, instead of 20 spaces. Minor improvements would be made to the parking area adjacent to the entrance gate, and CDPR would develop shaded fuel breaks alongside trails and roads. These features are described in detail in the Final EIS/EIR.

These features remain consistent with the Auburn SRA Interim Resources Management Plan, and would involve minimal construction or modifications at the site and would be of "rustic" design. Additionally, these facilities would be totally within the existing Auburn SRA and would not constitute or lead to expansion of the existing boundaries.

CDPR would remain responsible for the management of recreation activities within the Auburn SRA. Reclamation and CDPR would update or modify their management agreement regarding these responsibilities.

Land Purchase Agreement

An overall objective specific to Reclamation is to completely satisfy its obligations to PCWA under the Land Purchase Agreement. This would include alleviating Reclamation of any and all obligations for water delivery, management, operation and maintenance activities of the intake, pumps, and pump station site following completion of construction and start-up of the Proposed Project. PCWA proposes to enter into a contract accepting ownership of such new facilities , and operate them for water supply purposes, thereby relieving Reclamation of its obligation under the Land Purchase Contract.

Expandable Conveyance Facility

Demand projections for PCWA water supplies into the future show a need for an additional 35,000 AFA, above the capacity of the proposed year-round alternatives, by 2030. To maintain an option to meet this projected demand by diverting water from the American River at Auburn, PCWA has identified the objective of designing the project so that it could be expanded from 100 cfs to 200 cfs when, and if, needed in the future. Consistent with its negotiations within the Water Forum[2], PCWA is currently engaged in various engineering studies and contract negotiations designed to advance the option of diverting water from the Sacramento River to meet a portion of its projected future demands as an alternative to the expansion of the American River pump station. However, since a Sacramento River diversion alternative is not currently consistent with PCWA's water rights or CVP entitlements, preserving the opportunity to expand this project (which would be consistent with PCWA's existing water rights) with minimal local environmental disruption is considered prudent planning. Any future expansion (from 35,500 AFA to about 70,500 AFA) would require prerequisite environmental regulatory review and approvals before PCWA could modify the facilities and operate at that level.

An additional future water demand consideration for the project involves the Georgetown Divide Public Utility District (GDPUD). Public Law (P.L.) 101-514 authorizes and directs Reclamation to enter into a long-term water service contract with the El Dorado County Water Agency (EDCWA) for up to 15,000 AFA, of which between 5,000 to 7,500 AFA may be subcontracted to GDPUD. Planning efforts have been initiated and public notices have been issued for the water service contract with EDCWA (*Federal Register* Notice dated June 14, 1998). Although GDPUD will not need additional water supplies for many years, it has requested that PCWA design its intake and pump station so its capacity could be expanded by up to 25 cfs to accommodate GDPUD's future needs.

Project Alternatives

The three alternatives considered in detail in the EIS/EIR are described below, beginning with the No Action/No Project Alternative followed by the Proposed Project and then the Upstream Diversion Alternative. The Proposed Project and Upstream Diversion Alternative are referred to as the "Action Alternatives" as selection of either one would result in development of a year-round facility. Differences between the two Action Alternatives include the location of the diversion/ intake structure, whether or not the Auburn Dam construction bypass tunnel would be closed, and implementation of a restoration plan for the existing dewatered segment of the American River channel at the project site. The Proposed Project would locate a new pump station and diversion/intake facility in the dewatered reach of the river channel, close the bypass tunnel, and restore the river channel. The Upstream Diversion Alternative would locate the pump station at the

[2] The Sacramento Area Water Forum is a diverse group of business and agricultural leaders, citizen groups, water managers, and local governments in Sacramento, Placer, and El Dorado counties. The Water Forum Agreement includes provisions for each of the participating agencies to achieve the plan's two co-equal objectives -- provide a reliable and safe water supply for the region's economic health and planned development to 2030; and to preserve the fishery, wildlife, recreational, and aesthetic values of the lower American River. The elements of the Water Forum Agreement address key regional issues including surface water diversions, groundwater management, dry year water supplies, water conservation, and protection of lower American River resources.

same site as the Proposed Project, but place the diversion/intake facilities upstream of the bypass tunnel inlet; the bypass tunnel would remain open, and the dewatered river segment would not be restored. Both Action Alternatives propose facilities that would provide a year-round MFP water supply to PCWA with a design capacity of 100 cfs for an annual supply of up to 35,500 AF.

Table S-2 provides a comparison of each alternative to the purpose, needs, and objectives for the project. **Table S-3** lists the major features and activities associated with each alternative.

No Action/No Project Alternative

If the lead agencies do not construct a new year-round diversion and pump station facility for the American River diversion, the No Action/No Project Alternative would occur. Under this alternative, Reclamation would continue annual installation and removal of the seasonal pumps at the existing location (**Figure S-5**) and maintain responsibility for the operation and maintenance of the facilities. The seasonal pump station facility includes an inlet pipeline that draws water from a small sump pond approximately 750 feet upstream of the bypass tunnel inlet, four pump canisters (12.5 cfs capacity each), and 2,800 feet of steel pipeline placed above ground from the pump station connected to the Auburn Ravine Tunnel portal (**Figure S-6**).

Under the No Action/No Project Alternative, PCWA would rely upon operation of the seasonal pumps for its MFP water supply; however, within the next few years, PCWA would request that Reclamation install the pumps earlier in the year as PCWA customer demands and overall reliance on the pump station increase. For purposes of analysis in the Draft EIS/EIR, the seasonal pump station under the No Action/No Project Alternative would operate for eight months of the year, April through November. This operational period was selected because it excludes the normal high river flow months of December, January, February, and March, when facilities would be at the greatest risk of flood-related damages.

Under No Action/No Project Alternative operations, PCWA would divert up to 50 cfs during April through November for a total volume of up to 19,300 AFA. Generally, No Action/No Project Alternative operation and maintenance activities would be similar to current activities.

Proposed Project - Mid-Channel Diversion Alternative

The Proposed Project would integrate the water supply intake features and river restoration components into the project design, thereby meeting all stated objectives (Table S-2). The major water supply facilities and public river access features that would be constructed for the Proposed Project are summarized in Table S-3 and shown on **Figures S-7** and **S-8**. The estimated cost for construction of the Proposed Project would be $31 million. The pump station facility would cost approximately $18.1 million, bypass tunnel closure would cost approximately $1 million, and river channel excavation and restoration, including development of the public river access facilities would cost approximately $11.9 million.

Table S-2
Comparison of the Alternatives to Project Purpose, Needs, and Objectives

	No Action/ No Project Alternative	Proposed Project	Upstream Diversion Alternative
Project Purpose			
Provide facilities to allow PCWA to convey its MFP water entitlement to the Auburn Ravine Tunnel to meet demands within its service area.	No	Yes	Yes
Eliminate the safety hazard associated with the Auburn Dam bypass tunnel.	No	Yes	Partially
Restore the dewatered portion of the North Fork American River at the Auburn Dam bypass tunnel.	No	Yes	No
Project Needs and Objectives			
PCWA Water and Conveyance Needs			
Restore PCWA's ability to divert its MFP water supply year-round.	No	Yes	Yes
Provide reliable, year-round diversion capacity of up to 100 cfs.	No	Yes	Yes
Auburn Dam and Bypass Tunnel Safety			
Alleviate public safety hazards from the Auburn Dam construction site.	No	Yes	Partially
River Restoration			
Open the American River to water-based recreation from Highway 49 to Folsom Reservoir.	No	Yes	No
Public Safety River Access			
Provide public safety river access at the American River Auburn pump station site and at Oregon Bar.	No	Yes	No
Land Purchase Agreement			
Alleviate Reclamation of obligations to PCWA under the Land Purchase Agreement.	No	Yes	Yes
Expandable Conveyance Facility			
Provide potential to add future diversion capacity of 25 cfs for GDPUD and an additional 100 cfs for PCWA.	No	Yes	Yes

Table S-3
Summary of Major Features and Activities for the Alternatives [a]

Facility	No Action/No Project Alternative	Proposed Project	Upstream Diversion Alternative
Pump Station			
Pump Station Location	At the existing site, approximately 750 feet upstream of bypass tunnel inlet	Approximately 600 feet northwest of bypass tunnel inlet	Same as Proposed Project
Pump Station Elevation (feet mean sea level (msl))	525	560 (above 100-year flood level)	Same as Proposed Project
Pump Station Configuration: PCWA	4 12.5 cfs pumps (50 cfs)	5 pumps: 2 at 38 cfs and 2 at 17 cfs, one standby pump at 38 cfs	Same as Proposed Project
Expansion Planning: PCWA	None	Additional 100 cfs for a total of 200 cfs	Same as Proposed Project
GDPUD	None	25 cfs	Same as Proposed Project
GDPUD Pipeline to East Side of Canyon	No	Yes	Same as Proposed Project
Diversion/Intake Structure			
Diversion Location	At the existing site, approximately 750 feet upstream of bypass tunnel inlet	Approximately 600 feet northwest of bypass tunnel inlet	Approximately 100 feet upstream of bypass tunnel inlet
Intake Structure Design	Coarse screen diversion from sump pond	Intake structure with fish screens	Intake structure with trash rack and fish screens
Fish Screen	CDFG-approved screen or fish barrier to be placed at mouth of inlet channel	Installation of a CDFG-approved fish screen on the water supply intake structure	Same as Proposed Project
Hydraulic Gradient Control Structures	None	Series of structures constructed from rock, grouted rock, and concrete to create low-gradient hydraulic drop resulting in a rapid navigable by watercraft	Vee-notch weir
Extent of River Channel Modification	100 feet annually	4,000 feet	200 feet

[a] The pump station and associated facility locations evaluated in the EIS/EIR represent the preliminary footprint for the project at this stage in the design process. It is noted that the design continues to be refined and construction of individual facilities would be modified, based on actual site conditions at the time of construction. However, it is anticipated that such adjustments would be minor and the analysis of the project area provided in the EIS/EIR adequately address site-specific resource issues that would be affected by construction and operation of the pump station facility. Any substantial change in the size or placement of project facilities would warrant reconsideration of environmental impacts in a separate document.

Table S-3 (Continued)
Summary of Major Features and Activities for the Alternatives

Facility	No Action/No Project Alternative	Proposed Project	Upstream Diversion Alternative
River Channel Restoration			
Bypass Tunnel Closure	No	Yes	No
Restoration of the Dewatered River Channel	No	Yes	No
Public River Access Improvements	None	Parking, road, and trail improvements, CDPR entrance station, sanitation facilities	None
Construction and Restoration Excavation			
River Channel Excavation Depth	N/A	Up to 20 feet	N/A
Volume of Excavation Material to be Removed	N/A	700,000 to 1 million cubic yards	72,000 cubic yards
Excavation Material Disposal Volume by Location	N/A		
East of Auburn Dam Keyway		90,000 cubic yards	72,000 cubic yards
Bypass Tunnel Inlet		30,000 cubic years	
Bypass Tunnel Outlet		20,000 cubic yards	
Bench, South of Keyway		560,000 cubic yards	
Pipelines			
Pipeline(s) From Intake Diversion to Pump Station			
Length	16 feet	150 feet	550 feet
Diameter	Two at 8 feet each	One at 7 feet	Same as Proposed Project
Pipeline from Pump Station to Auburn Ravine Tunnel			
Length	2,800 feet	1,670 feet	Same as Proposed Project
Diameter	2.5 feet	6 feet	Same as Proposed Project
Pump Station Construction and Facility Access Roads			
Access Road Improvements	Annual re-grading and rehabilitation of all roads	All-weather road improvements:	
Entrance to Pump Station Site		1,460 feet	Same as Proposed Project
To Auburn Ravine Tunnel		1,430 feet	Same as Proposed Project
Pump Station to Diversion		150 feet	600 feet
Power Lines			
Length of New Power Lines to be Installed to the Pump Station and Intake Structure	None	Approximately 650 feet	Approximately 1,050 feet

Table S-3 (Continued) Summary of Major Features and Activities for the Alternatives			
Facility	**No Action/No Project Alternative**	**Proposed Project**	**Upstream Diversion Alternative**
Safety Features			
Safety Features to Warn and Discourage the Public from Entering the Bypass Tunnel	Signs	Tunnel closed, low gradient structures to reduce hazards to in-river users	Buoys, signs, and ropes
Project Design and Construction Cost			
Project Cost	$250,000 to $1 million annually	$31 million	$17 million
Management Responsibility			
Project Ownership, Operation and Maintenance Responsibilities	Reclamation - continued role with seasonal facilities	PCWA - pump station and related facilities Reclamation/CDPR - public river access site maintenance and management	PCWA - pump station and related facilities

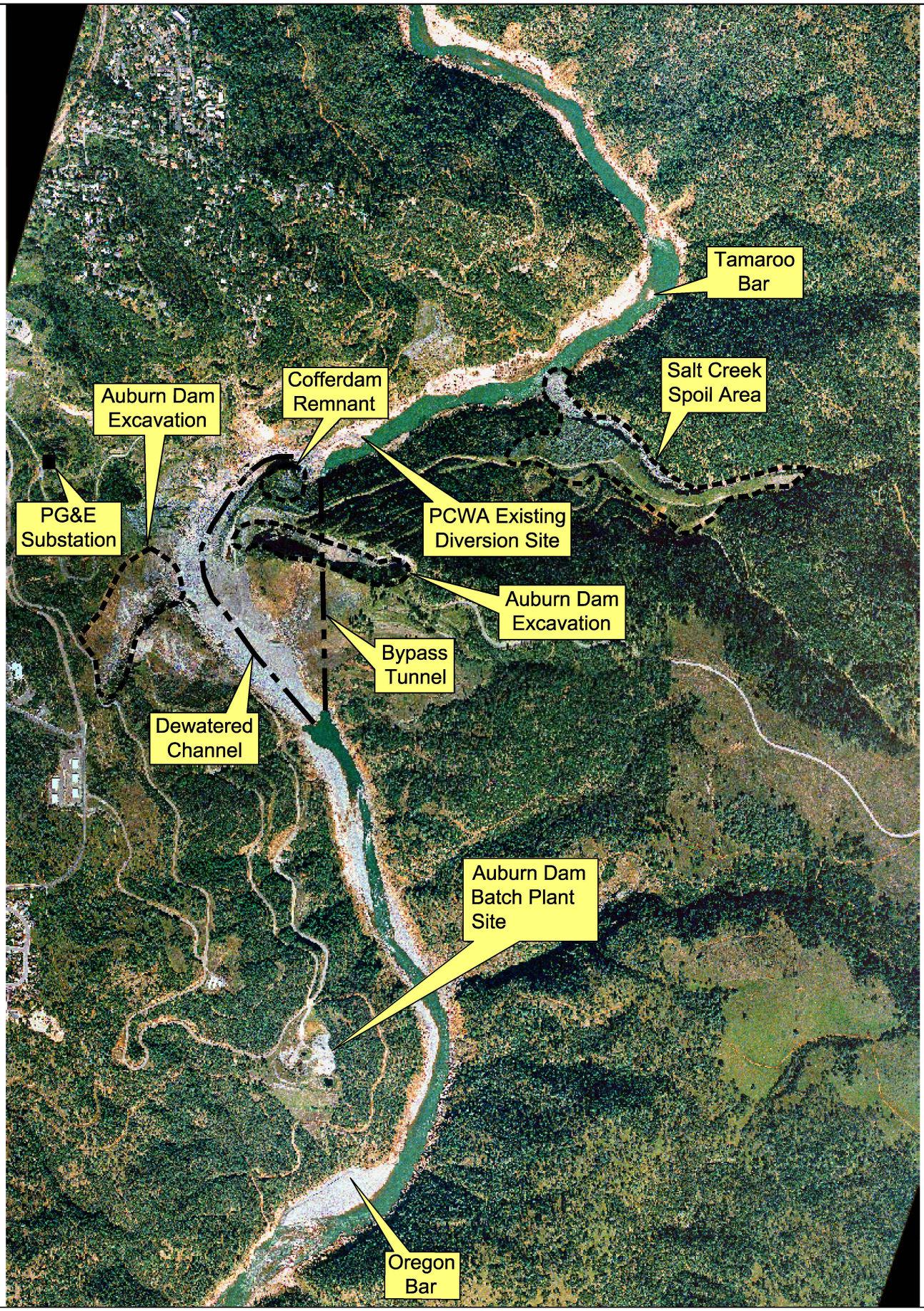


Figure S-5 Existing Project Area Conditions

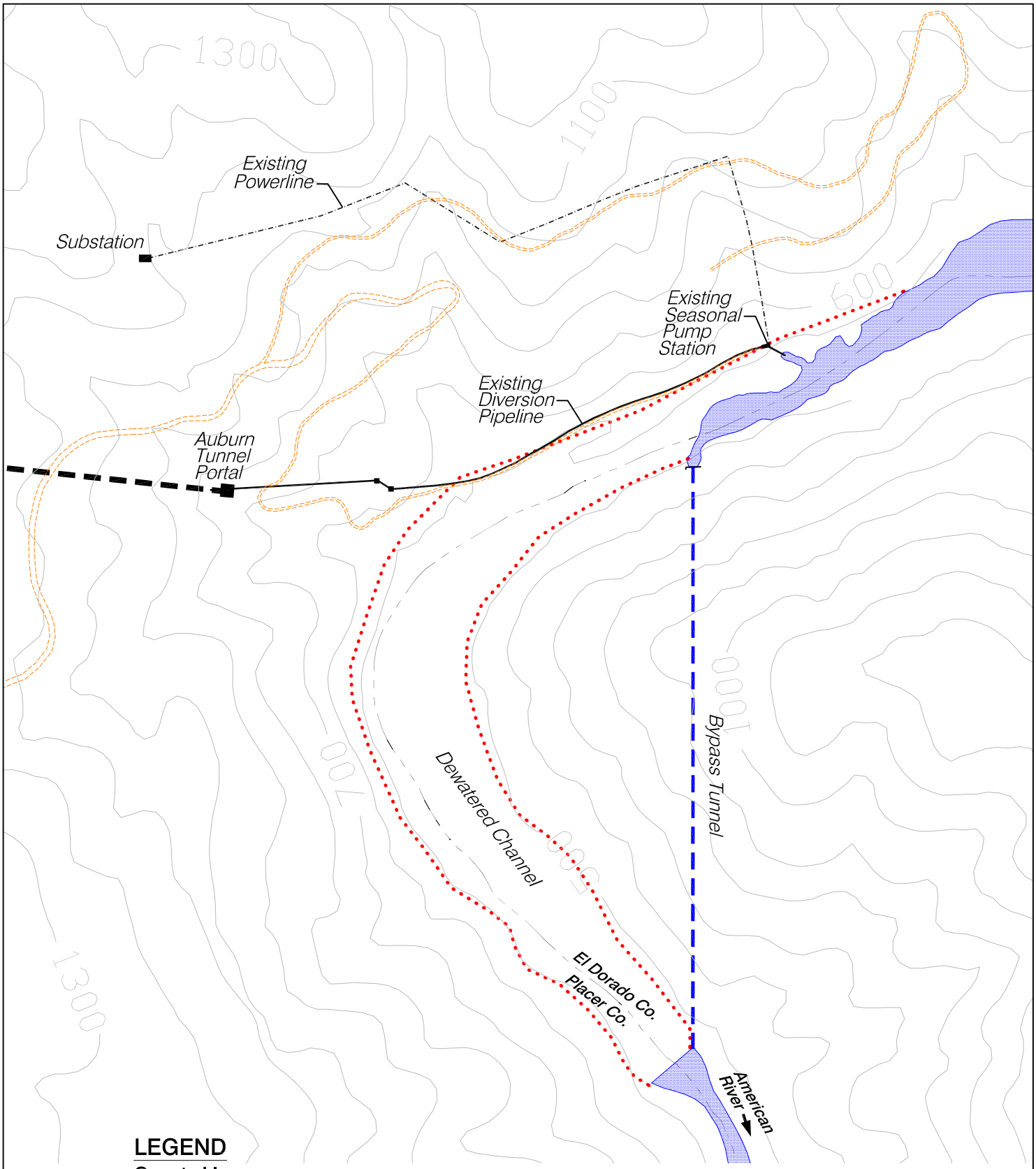


Figure S-6 Major Features of the No Action/No Project Alternative

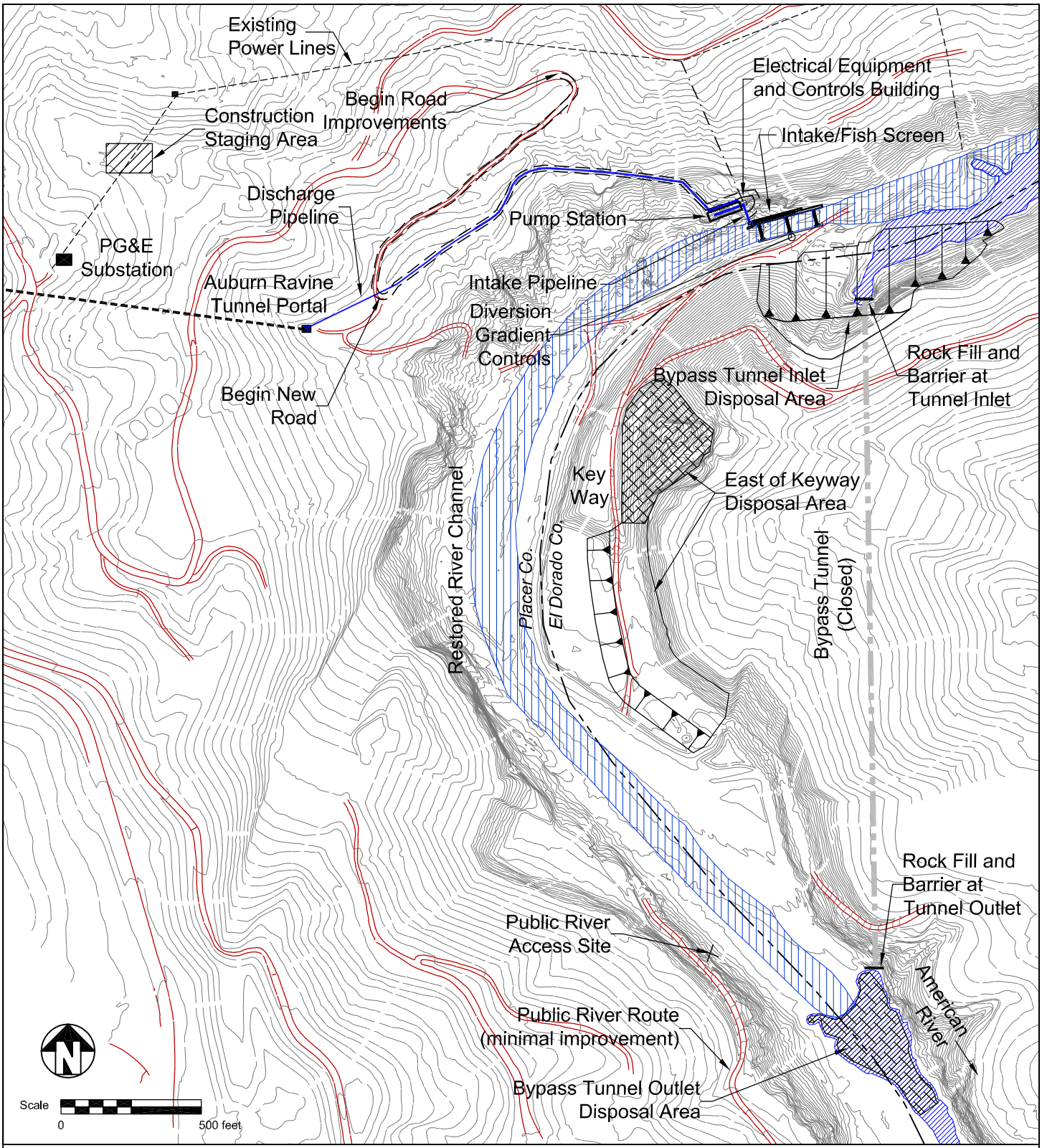


Figure S-7 Major Features of the Proposed Project (Mid-Channel Diversion)

Figure S-8 Public River Access Facilities at Auburn Dam Site and Oregon Bar (Proposed Project-revised)

The major features and activities associated with construction of the Proposed Project include:

- Construction of a new pump station, placed above the 100-year flood level;
- Construction of a water diversion/intake structure;
- Installation of a CDFG-approved fish screen;
- Closure of the bypass tunnel;
- Restoration of flow to the American River channel;
- Installation of water conveyance pipelines;
- Improvement and development of all-weather access roads for project construction and operation;
- Extension of power supply lines; and
- Creation of public river access sites/safety features and related improvements at the Auburn Dam site and near Oregon Bar.

The Proposed Project evaluated in the EIS/EIR consists of increasing diversions from the American River from 50 cfs up to 100 cfs. Consistent with the project objectives, the design of the individual facilities would provide capacity for a future potential expansion diversion of up to 225 cfs. Sizing the facilities to accommodate the potential expanded diversion amount minimizes environmental effects and costs associated with meeting project objectives. The future expansion, if implemented, would involve installation of higher capacity pumps and increased diversion from the river, the details of which remain undetermined at this time. Expansion of the pump station and any increase of diversions above 100 cfs, including extension of infrastructure to GDPUD, would be subject to additional environmental review and resource agency approvals and permitting.

The river channel restoration component of the Proposed Project incorporates several design elements with the overall goal of joining the dewatered segment of the river channel with the upstream and downstream river reaches to create, to the extent possible, a naturally functioning river system. The objectives of river restoration include:

- Development of a stable foundation for water supply diversion;
- Restoration of dewatered channel to appear and function like a natural river environment;
- Enhancement of fish and wildlife habitat; and
- Provision of public river access opportunities.

Implementation of the Proposed Project would satisfy the immediate need for water supply purposes, including creation of a stable foundation for structures and restoration of the channel to

convey year-round flows and obtain predictable water elevations in this segment of the river. A key design goal for the restoration component of the Proposed Project is to imitate, to the extent possible, the appearance and form of a natural river channel, including the banks and floodplain benches. Placement of the excavation material (Figure S-7) would be engineered and designed to accommodate anticipated natural processes and be visually and functionally compatible with river reaches up and downstream of the project site. Preliminary site-specific considerations that would be incorporated into the final design and implementation of the river channel restoration include:

- Sediment transport due to both past Auburn Dam activities and proposed river restoration;
- Bed and bank stability in light of the natural variability of erosion in the project area; and
- Range of flow conditions characteristic of the upper American River.

The major features associated with the public river access features of the Proposed Project include: an entrance gate and booth at the Maidu Drive intersection with the Auburn Dam construction access road including limited improvements to the existing parking area in this location; roadway and trail improvements to provide safe access and avoid conflicts between multiple uses; a 50-space vehicle parking area at the former Auburn Dam batch plant site; modification of the existing trail junction near Oregon Bar to allow vehicle turnaround access; three handicap-accessible spaces and river-side turnaround provisions; and sanitation facilities (trash containers and restrooms). The Draft EIS/EIR included a proposal to develop a 20-car parking area near the river across from the bypass tunnel outlet. In response to public comments regarding potential impacts associated with this use in the area, the current proposal includes only three handicap-accessible parking spaces and a vehicle turnaround in this location. These features are shown on Figure S-8 and described in detail in the Final EIS/EIR. CDPR would be responsible for the operation and maintenance of the Proposed Project public river access features. The existing agreement between Reclamation and CDPR would be updated to reflect CDPR's responsibilities for management of the area, including patrolling and enforcement activities.

Within the near-term, the Proposed Project also would improve conditions for fish and wildlife and provide interim recreational benefits. Further enhancement of fish and wildlife habitat would occur over time as the channel and the surrounding environment respond to the returned river flows. Future long-term recreation planning also will occur as part of Reclamation and CDPR update of the management plan for the Auburn SRA anticipated to begin in 2002 (such planning is beyond the scope of the pump station project).

Construction of the Proposed Project would involve two phases over approximately 22 months. Phase I activities would begin in late 2002 and extend into spring 2004. Phase II construction will be initiated in spring 2003 and extend through summer 2004. Phase I construction would include access roads, initial site preparation, dry streambed excavation (rough grading) and construction of the pump station. Phase II would involve construction of the intake/diversion structure, fish screen, pump station sediment facilities, river gauging stations, standby power facilities, final channel grading, closure of the bypass tunnel and rerouting of river flows, and public river access improvements.

Upon completion of construction and testing of the pump station, Reclamation would transfer the ownership of the facilities to PCWA, in accordance with the contract between PCWA and Reclamation to be executed prior to construction. PCWA would assume full responsibility for all operation, maintenance, and related activities associated with water supply purposes. Reclamation would retain the responsibility for all other operation and maintenance activities associated with the authorized Auburn Dam Project, and would have certain of those responsibilities performed by CDPR under its agreement to manage the Auburn SRA.

The Proposed Project operation originally involved increased delivery of American River water into Auburn Ravine in exchange for Yuba/Bear River water deliveries made to agricultural raw water customers in western Placer County, within PCWA Service Area Zone 5. In response to public comments received on the Draft EIS/EIR regarding potential impacts upon fish resources of Auburn Ravine, the Proposed Project no longer includes this manner of operation. Instead, water diverted from the North Fork American River would be conveyed to the water distribution system using a process called double-pumping. After being pumped from the North Fork American River, water would flow within the Auburn Ravine Tunnel, and from the tunnel would be pumped again into PG&E's South Canal by the Auburn Ravine Tunnel Pump Station. The water would then flow within the South Canal where it would be delivered to PCWA's water distribution system (**Figures S-9** and **S-10**).

The double-pumping commitment by PCWA is a more costly method of water conveyance but ensures that the potential impacts resulting from an increase in volume or a change in the seasonal distribution of flow in Auburn Ravine would be avoided. The formerly proposed American River water increase in Auburn Ravine, therefore, would be avoided; however, the American River water currently delivered to Auburn Ravine would remain, within the limits of recent historical monthly maximum delivery rates.

Despite the absence of any expected adverse significant impact on the aquatic resources of Auburn Ravine from the Proposed Project or Upstream Diversion Alternative, it was determined that additional data concerning Auburn Ravine and its resources would be desirable. Accordingly, PCWA proposes to conduct a data collection program in Auburn Ravine to amass a database that can be of use for future decision-making regarding the American River and Auburn Ravine. The monitoring program will consist of flow and water temperature monitoring at locations selected to (1) enhance the ability to determine water quantities (flow) associated with Auburn Ravine and to (2) quantitatively determine the effects of the activities in the Auburn Ravine drainage on water temperatures. This program is included as one of the Conservation Measures in the Mitigation Monitoring and Reporting Program/Environmental Commitments Plan (Mitigation Plan). The Mitigation Plan is included as Appendix D to the Final EIS/EIR.

Upstream Diversion Alternative

The Upstream Diversion Alternative would provide PCWA with a reliable, year-round diversion of its MFP water supply from the North Fork American River while alleviating Reclamation of its obligations to PCWA under the Land Purchase Agreement. Additionally, the Upstream Diversion Alternative would provide the potential for future increased diversion capacity for PCWA as well as GDPUD.

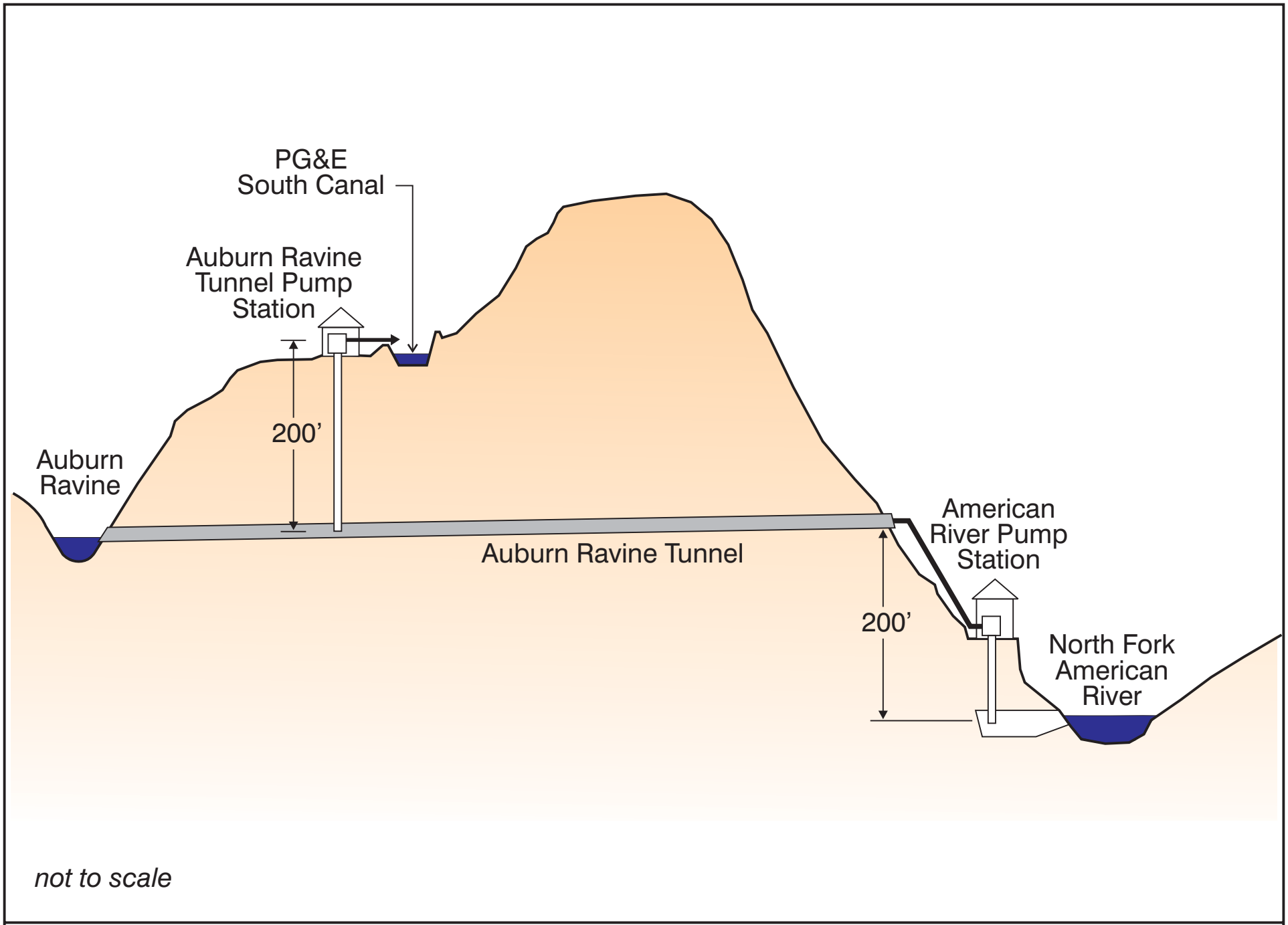


Figure S-9 Hydraulic Profile of Water Deliveries from the American River Pump Station

PCWA-042

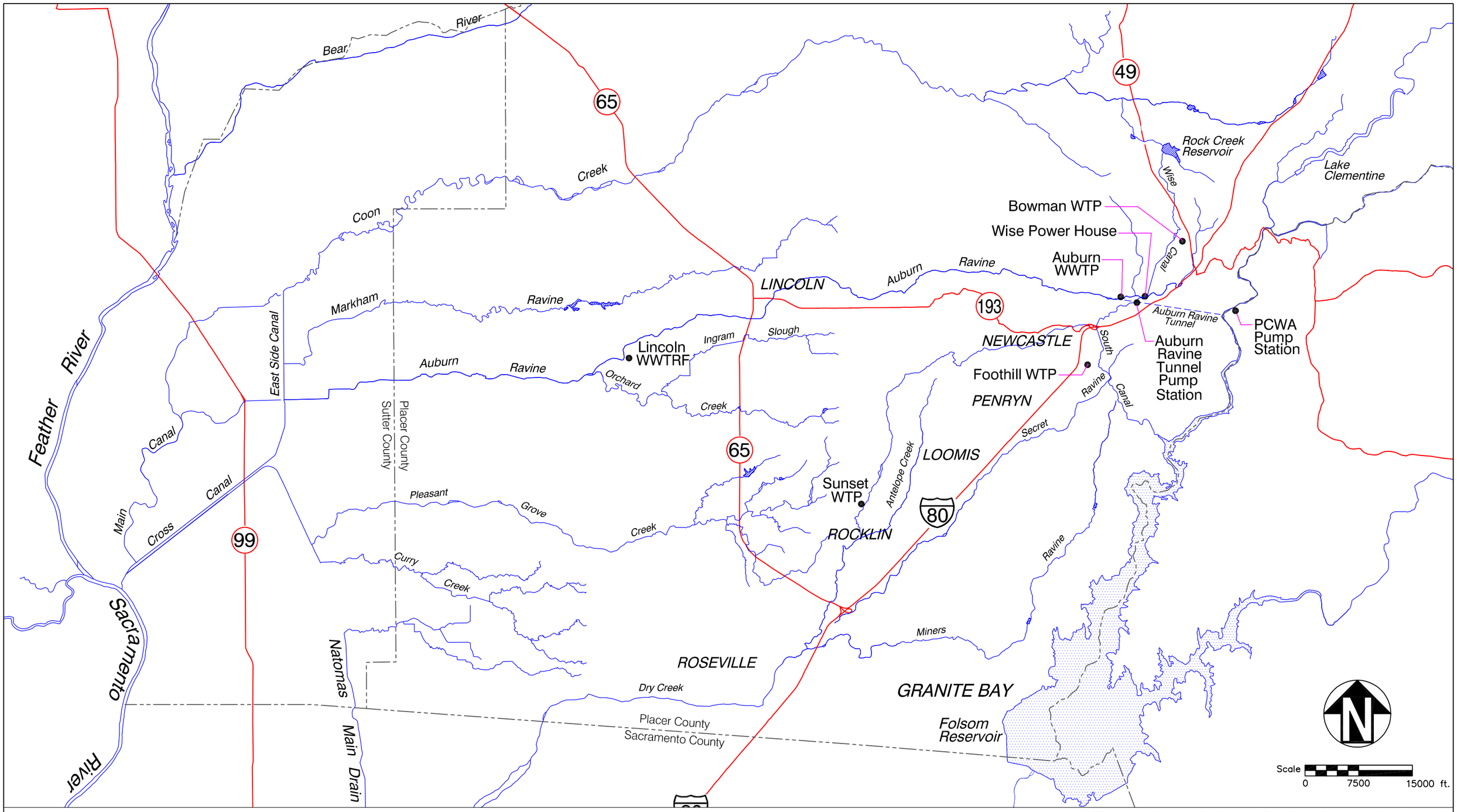


Figure S-10 Auburn Ravine Watershed and Related Delivery System Infrastructure

The major features that would be constructed for the Upstream Diversion Alternative include the water diversion/intake structures, including a CDFG-approved fish screen; water conveyance pipelines, a new pump station, placed above the 100-year flood level; all-weather access roads; power lines; and safety features (Table S-3). The Upstream Diversion Alternative would site the diversion/intake structure upstream of the bypass tunnel inlet. Locating the diversion upstream of the bypass tunnel would not require channel restoration or tunnel closure. The project area would remain closed to the public, except for authorized designated trail use. No additional public access facilities would be developed. The pump station location and associated facilities would be the same as proposed for the Proposed Project. These features are shown on **Figure S-11** and discussed below. The estimated cost for construction of the Upstream Diversion Alternative would be approximately $17 million.

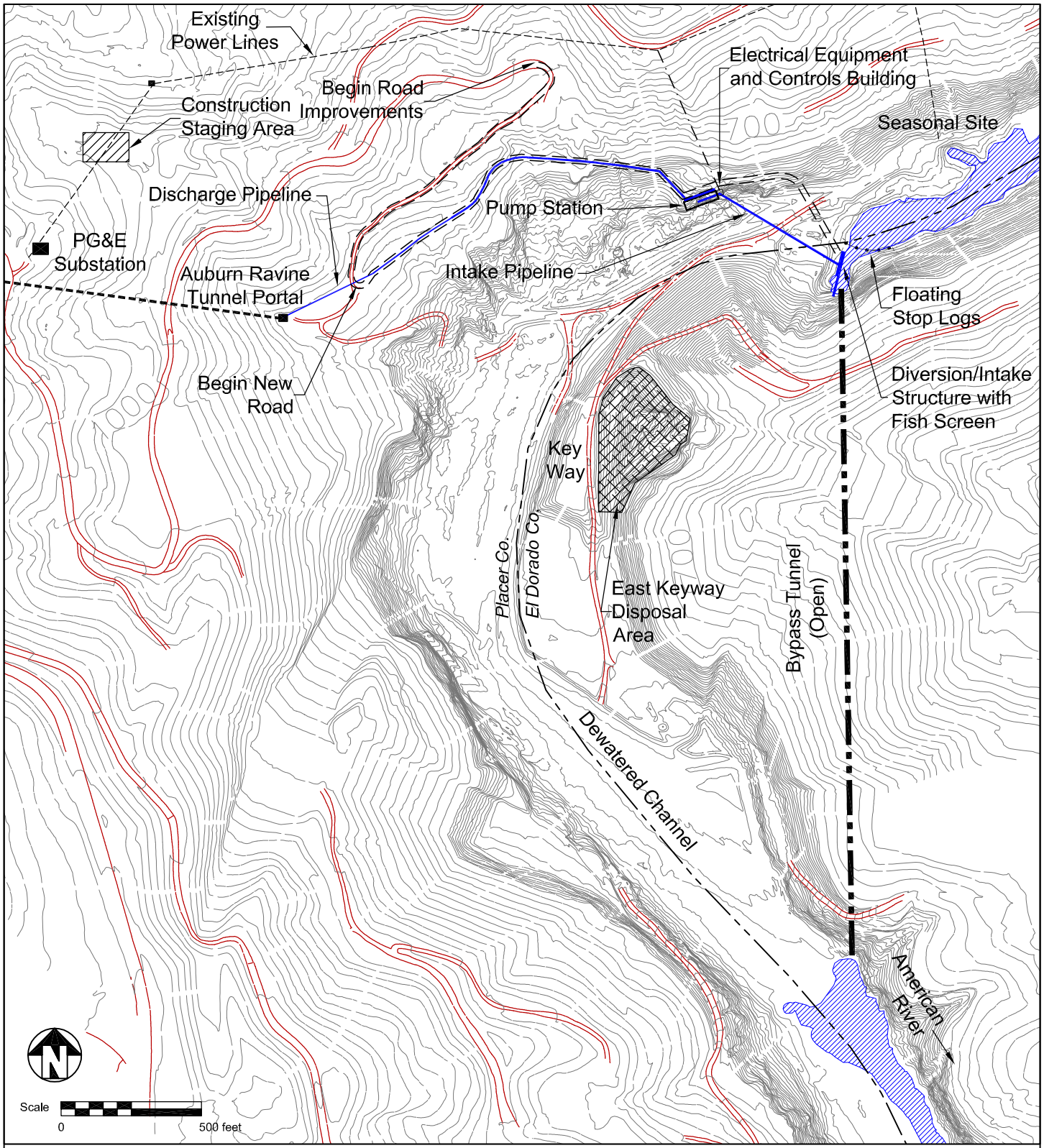
Construction of the Upstream Diversion Alternative would require approximately 21 months beginning in 2003 and ending in summer 2004.

As with the Proposed Project, upon completion of construction and testing of the pump station, Reclamation would transfer the ownership of the facilities to PCWA, in accordance with the contract between PCWA and Reclamation to be executed prior to construction. PCWA would assume full responsibility for all operation, maintenance, and related activities associated with the pump station. Reclamation would retain the responsibility for all other operation and maintenance activities associated with the authorized Auburn Dam Project. CDPR would continue to manage existing recreation-related activities within the project area; however, use of the river would continue to be restricted under CDPR order.

Affected Environment and Environmental Consequences

This section summarizes the affected environment and environmental consequences of implementing the Proposed Project or other alternatives. The resource topics addressed by the Final EIS/EIR were initially identified by the project team engineers, planners, and facility operators, through public and agency scoping meetings, and during preliminary consultations with regulatory and resource agencies. Sections 3.4 through 3.19 of the Final EIS/EIR provide an evaluation of the following resource topics:

- Water Supply and Hydrology
- Fish Habitat and Aquatic Resources
- Terrestrial Resources
- Water Quality
- Recreation
- Visual Resources
- Cultural Resources
- Power Supply
- Land Use
- Geology and Soils
- Transportation and Circulation
- Air Quality
- Noise
- Public Health and Worker Safety
- Indian Trust Assets
- Environmental Justice
- Essential Fish Habitat
- Irreversible and Irretrievable Use of Resources
- Short-term Uses of the Environment Versus Long-term Productivity
- Climate Change
- ESA Compliance



LEGEND

- Existing Access Road
- Contour of Equal Elevation (feet above mean sea level)
- County Line
- Existing Power Lines
- Proposed Power Lines

Figure S-11 Major Features of the Upstream Diversion Alternative

Project Study Area

The study area includes the following subareas: regional setting, project area setting, PCWA water service area, and American River Basin water service area.

Regional Setting

The regional setting encompasses the water bodies and waterways that may be influenced by changes in CVP or SWP operations in response to increased diversions from the American River watershed, including the Proposed Project. The Proposed Project is one of several reasonably foreseeable actions that would result in changed operations of Reclamation's CVP American River Division facilities, including Folsom Dam and Reservoir. Reclamation's coordinated operations between Folsom and Shasta/Trinity reservoirs result in a need to consider the Shasta CVP facilities and upper and lower Sacramento River. Additionally, integrated operations between the California Department of Water Resources (DWR) and Reclamation may affect Oroville Reservoir, lower Feather River, and Delta facilities. These are all included in the regional study area. Other future actions, interrelated to the American River system, also are considered in the evaluation. These include Yuba/Bear River system, Cosumnes River/Sly Park-Jenkinson Lake (CVP facilities), and the upper forks and tributaries of the American River. The resources within the regional setting area would not be affected directly by the construction, operation, or maintenance of the pump station project, and are therefore also considered to define the indirect effect study area.

Project Area Setting

The project area setting represents the direct effect study area and encompasses all areas where the direct effects of construction, operation, and maintenance of the Proposed Project or alternatives would occur for a particular resource topic.

Placer County Water Agency Water Service Area

PCWA will continue to convey and deliver the MFP water diverted from the pump station to Service Area Zones 1 and 5. This water would be used to meet current needs, serve as back-up to the Drum-Spaulding Project water, and accommodate growth as projected in approved general, specific, and community planning documentation adopted for these areas of western Placer County.

Water Service Area for U.S. Bureau of Reclamation's Future Central Valley Project Actions in the American River Basin

Reclamation has identified several reasonably foreseeable federal actions that, over the next 25 years, would result in substantial changes in CVP system operations and an increase of American River or Sacramento River diversions for M&I and agricultural water supplies for use in the American River Basin.

The cumulative service area analysis evaluates the potential secondary, indirect effects of providing increased water supplies to lands within the service boundaries of the water purveyors and includes lands within Placer, El Dorado, Sacramento, Alameda, and Contra Costa counties

where impacts to environmental resources could result from the collective actions associated with future planned urbanization. Maps depicting these service areas are provided on **Figures S-12** and **S-13**.

Impact Assessment Framework and Methodology

Implementation of the Proposed Project or alternatives is anticipated to produce two distinct types of effects within the local or regional setting: (1) direct impacts related to construction and operation of the facilities (such as noise); and (2) indirect diversion-related effects (such as changes in hydrology) resulting from the increased diversion of water from the North Fork American River. The facilities impacts are localized, and are mostly construction-related; the potential effects of increased diversions are long-term, and may affect environmental resources beyond the local project area. It was determined that future changes in water supply system operations associated with the Proposed Project and other actions evaluated for the cumulative analysis would not result in changes to the Cosumnes River, nor the Yuba/Bear River system. These water bodies are therefore not addressed in any detail in the analysis.

Issues Identified and Considered in the EIS/EIR Process

During all public and agency stakeholder meetings held prior to and during preparation of the Draft EIS/EIR, participants were provided with a brief presentation concerning the project and particular challenges associated with each of the project alternatives, including the No Action/No Project Alternative. A summary listing of issues and comments identified by the public, resource agencies, and project proponents is presented below.

Water Supply and Hydrology

- Commitment to Water Forum purveyor-specific agreement elements
- River channel stability – cofferdam debris movement
- Long-term stability of the diversion structure
- Backwater effect at Tamaroo Bar
- Flood event effects on project facilities
- Meet increased demand by conservation or water exchanges with other purveyors
- Instream flow/diversion effect
- Discuss possible use of pump station facilities by GDPUD, identify any rate increase associated with facility construction
- Consistency of this project with the CVPIA PROSIM 99 model
- Groundwater supplies

Fish Resources and Aquatic Habitat

- Special-status species – chinook salmon, steelhead (flow, diversion structure)
- Instream flow requirements for fisheries
- Water chemistry changes – effects on special-status fish species migration (Auburn Ravine)
- Restoration of coho salmon to the north and middle forks of river (otters and eagles)
- Restore the river channel

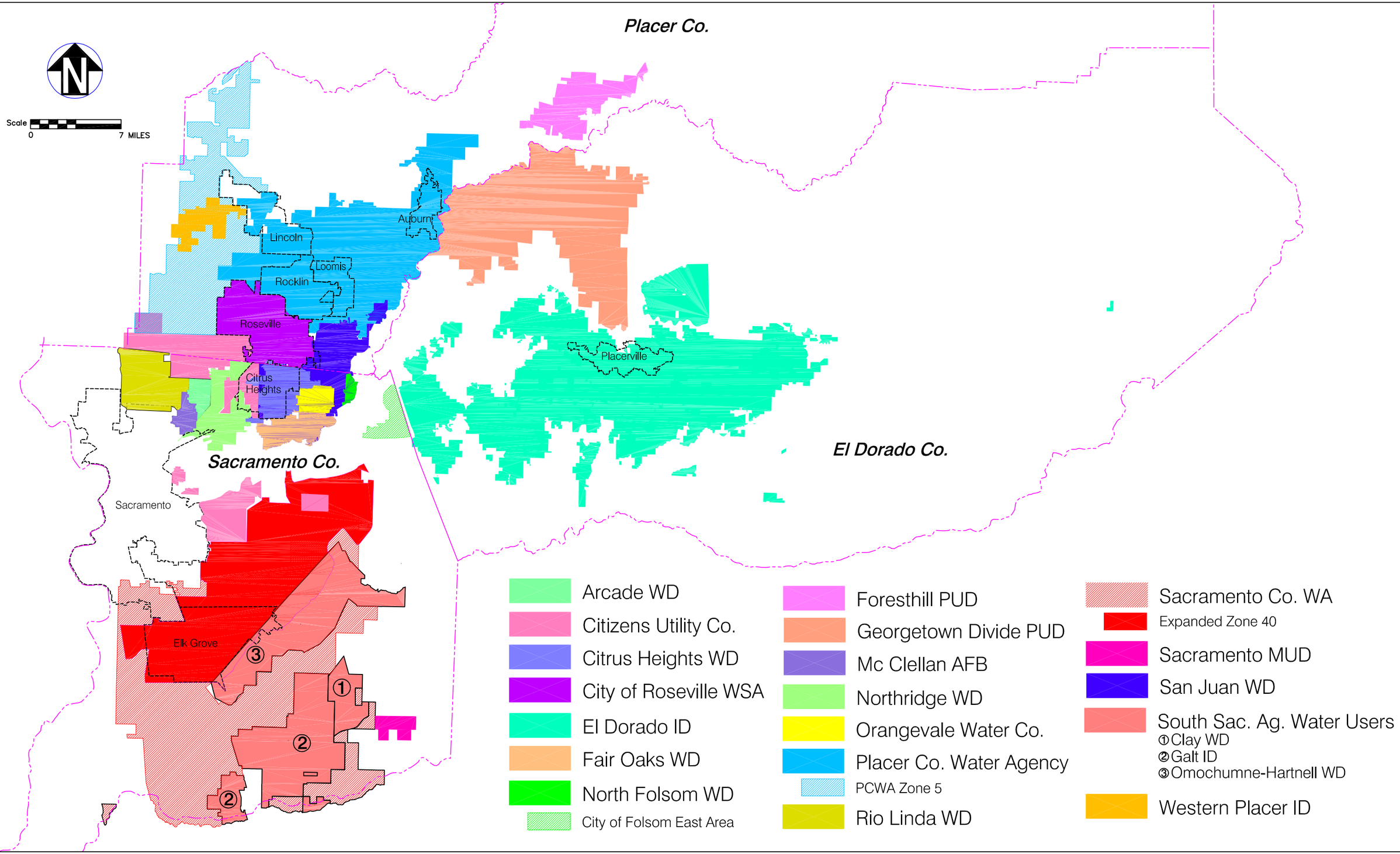


Figure S-12 American River Basin Water Service Study Area

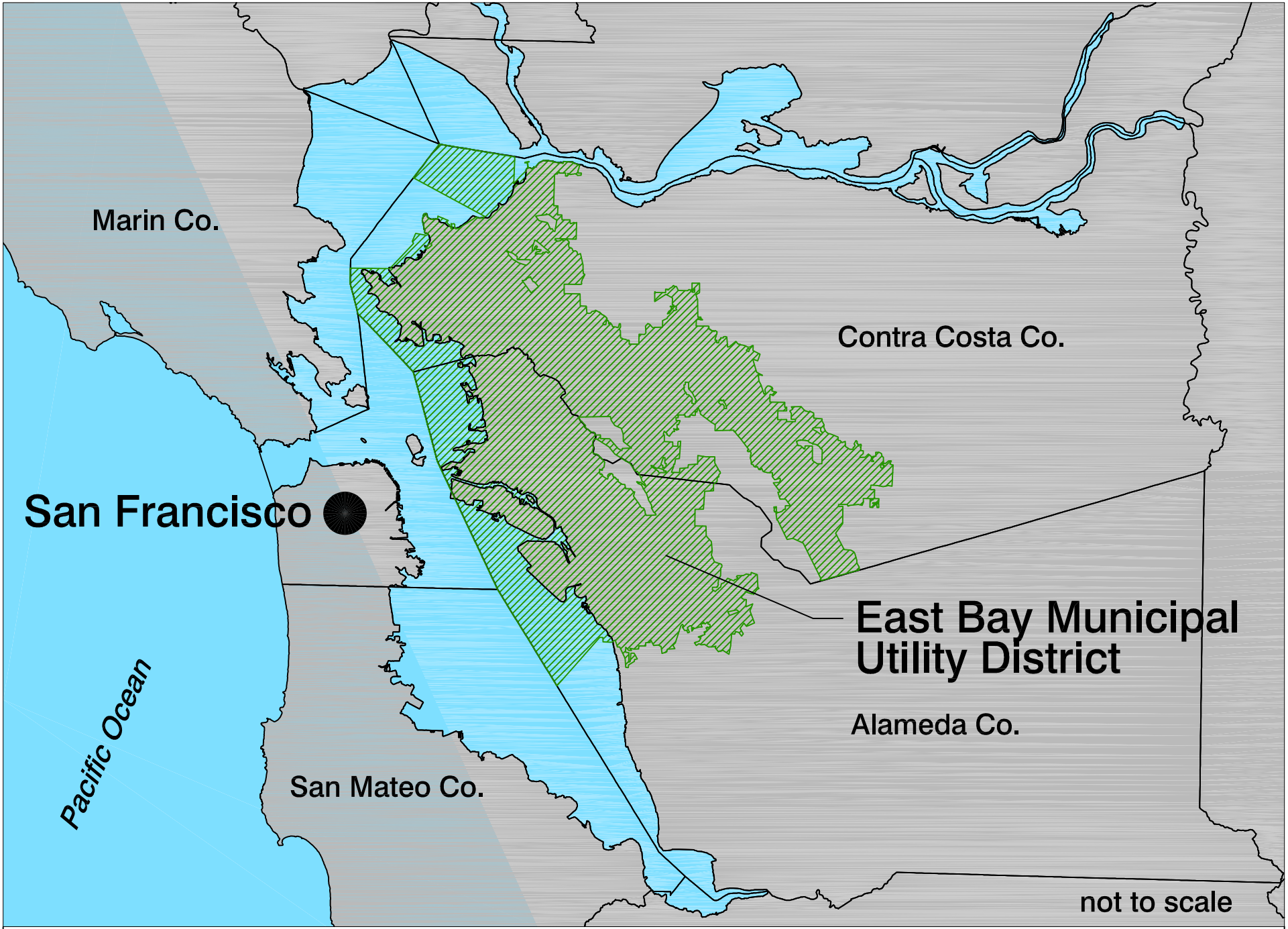


Figure S-13 East Bay Municipal Utility District Water Service Study Area

PCWA-042

- Restore fish runs upstream of Folsom Dam
- Protection of fish from injury at the pump station
- Auburn Ravine impacts from increased flows

Terrestrial Resources

- Wildlife migration corridors and flyways
- Riparian habitat protection/enhancement
- Restore the river channel to improve the ecosystem

Water Quality

- Sedimentation/turbidity
- Water temperature
- Auburn Ravine – when the water leaves the Auburn Ravine Tunnel – where does it go?
- Groundwater quality

Recreation

- Public access – hiking/equestrian/bicycle trails, access to the river for water-based activities
- Public use of roads constructed by the project
- Project consistency with the Auburn State Recreation Area Interim Management Plan
- Cost-benefit comparison of recreation opportunities between alternatives
- Diversion tunnel safety hazard to recreation
- Restore the river channel for water-based activities
- Attract Olympic events

Visual Resources

- Pump station aesthetics

Land Use

- Growth-inducement aspects of increased diversion/water supply (traffic, loss of habitats, public service burden)
- Agriculture impacts
- Placer County General Plan – what does "build-out" look like; will the project serve build-out; and will other facilities need to be constructed?
- Public utilities and services – energy consumption by pump station

Air Quality

- Short-term construction emissions
- Long-term operational emissions

Public Health and Worker Safety

- Diversion tunnel safety
- Structures as potential attractive nuisance (safety issue)
- Fire safety

Alternatives Analysis

- Upstream location poor choice – silt settling basin requires frequent dredging or special effort to maintain
- Cost-benefit analysis between alternatives – particularly related to recreation opportunities

Other Issues

- Political support
- Funding/use of tax dollars
- Auburn Dam – future construction/waste of resources
- Future planned changes to Folsom Dam (height)
- Relationship of project to other local and regional projects (cumulative analysis)
- Public Trust Doctrine
- Unreasonable methods of diverting water prohibited by Article X, Section 2 of the California Constitution and Section 100 of the California Water Code

Impact Conclusions

An overview of the Final EIS/EIR impact conclusions for each resource topic addressed in the EIS/EIR is provided below. The results of the impact analyses comparing the impacts among the alternatives and describing the significance of impacts of the alternatives after implementation of environmental protection or mitigation measures are summarized following these sections. Environmental protection measures have been incorporated as either construction management practices or design features to minimize or eliminate most potentially significant impacts to levels considered less than significant. The No Action/No Project Alternative would result in potentially significant, unavoidable impacts to water supply, fish resources and aquatic habitat, recreation, land use/plan consistency, and noise resources. Implementation of the Proposed Project would result in potentially significant, unavoidable water supply, recreation, and air quality (construction) impacts. The Upstream Diversion Alternative would result in potentially significant unavoidable water supply, recreation, and land use/plan consistency impacts.

Under the cumulative condition, potentially significant impacts have been identified for water supply, fish resources and aquatic habitat, water quality, recreation, cultural resources, power supply, and air quality (construction) impacts. Of these conditions, the Proposed Project potentially would have a considerable contribution only to air quality, and only in the event that other construction projects with unmitigated nitrogen oxide (NO_x) emissions occur within the air basin within the same timeframe as the Proposed Project construction.

Water Supply and Hydrology

Relative to the existing condition, potentially beneficial effects on water supply and river hydrology at the site would occur under the Proposed Project. All alternatives would provide PCWA an increased amount of water for use within Service Area Zone 1. No additional American River water relative to historical monthly maximum deliveries would be supplied to Service Area Zone 5 until further evaluation of potential effects upon Auburn Ravine resources was completed. The No Action/No Project Alternative facilities, however, would be subject to flooding and capacity limitations that make it potentially unreliable and unable to meet the project purposes and objectives. The No Action/No Project Alternative would potentially worsen groundwater overdraft conditions due to the likelihood that agricultural and rural farms would increase reliance upon groundwater as raw surface water supply deliveries ultimately would be reduced as a measure of conserving water and meeting treated water demands. The Proposed Project would close the bypass tunnel and restore surface water flows to the dewatered channel; this long-term beneficial effect upon North Fork American River hydrology would not occur under the No Action/No Project or Upstream Diversion alternatives.

American River water rights holders would not be subject to any supply deficiencies associated with the alternatives. CVP Settlement and Exchange Contractors would not experience any change in allocations. Although small and infrequent, potential reductions in CVP delivery allocations to Water Service Contractors would occur under all alternatives (reduced by up to five percent in up to two years out of the 70-year simulation). Under the cumulative condition, water delivery allocations for both SWP customers and CVP Water Service Contractors would be affected. Use of water by PCWA in accordance with its water rights in its place of use has a priority to the CVP's rights at Folsom Reservoir to the extent that such CVP rights are used for export. Because any reduction delivery allocations to these customers is considered significant, the impact upon SWP and CVP contractors would be considered an unavoidable adverse impact.

Fish Resources and Aquatic Habitat

Fish Passage Through Project Area

The No Action/No Project Alternative would include use of fish screening techniques approved by CDFG and included in the Streambed Alteration Agreement terms and conditions for the seasonal pump station. These provisions would be re-evaluated every five years. Implementation of these measures would protect fish from entrainment and impingement at the intake. The Action Alternatives would both include installation of a permanent CDFG-approved fish screen and provide a long-term reduction of fish impacts at the intake/diversion. Action Alternative construction would result in temporary, short-term disturbances of aquatic habitat; however, fish and water quality protection measures included in the Mitigation Plan would minimize these

effects to levels considered less than significant. The Mitigation Plan is included as Appendix D to the Final EIS/EIR and would be incorporated into Reclamation's construction contractor specifications. Potential water quality impacts upon fish habitat due to increased public use of the area would be minimized through stormwater runoff control and sanitation facilities. The Proposed Project would be the only alternative that would meet the objective of river restoration and enhanced fish/aquatic habitat at the project site. Fish passage through the project area would be improved under the Proposed Project by the river restoration; this benefit would not exist with the No Action/No Project or Upstream Diversion alternatives. However, these alternatives would not result in an adverse change from the existing condition.

Auburn Ravine

In response to the public and agency comments on the Draft EIS/EIR, PCWA identified an operational change that would involve maintaining its North Fork American River water releases to Auburn Ravine as under the existing conditions instead of releasing additional North Fork American River water into Auburn Ravine in exchange for Yuba/Bear River water. Water diverted from the North Fork American River would now be conveyed to the PCWA water supply distribution system using a process called double-pumping. After being pumped from the North Fork American River, water would flow within the Auburn Ravine Tunnel, and from the tunnel would be pumped again into PG&E's South Canal by the Auburn Ravine Tunnel Pump Station. The water would then flow within the South Canal where it would be delivered to the Foothill Water Treatment Plant (WTP). The formerly proposed American River water increase in Auburn Ravine therefore would be avoided; however, the American River water currently delivered to Auburn Ravine would remain within the limits of recent historical monthly maximum delivery rates.

The double-pumping commitment by PCWA is a more costly method of water conveyance but ensures that the potential impacts resulting from an increase in volume or a change in the seasonal distribution of flow in Auburn Ravine would be avoided. Still, American River water would be delivered to Auburn Ravine as historically conveyed, as well as via the Lincoln Wastewater Treatment and Reclamation Facility (WWTRF). Commenters suggest that these actions may still affect salmonid homing. However, a thorough review of the mechanisms that salmonids utilize when homing to natal streams indicates that it is unlikely that the Proposed Project or alternatives would produce a genetic disruption of Auburn Ravine salmonid stocks primarily due to the acute olfactory homing mechanisms in the salmonid family; the environmental homing cues and the fate of these cues within the study area; the sequential imprinting process; the probable lack of persistent, native Auburn Ravine stocks within the Central Valley Evolutionarily Significant Unit (ESU); and the mitigation programs of other water projects affecting Auburn Ravine. Similarly, the municipally delivered Proposed Project water which is distributed to the service areas of Placer County Department of Public Works SMD No. 3 and the two City of Roseville Wastewater Treatment Plants (WWTP) will undergo treatment as well, a process which is likely to drastically alter the homing cues before the effluent is discharged into Dry Creek and Pleasant Grove Creek. Therefore, the homing cues found in the American River water utilized within the PCWA service area are likely to be dramatically altered before entering Auburn Ravine, Dry Creek, and Pleasant Grove Creek suggesting that the water reaching these streams would retain low potential for attracting American River fish. These findings are described in detail in Response to Comments (Appendix C, Volume 1, Master Response 3.1.13, Auburn Ravine).

Diversion-Related Fisheries Effects in Regional Water Bodies

Changes to river flows and reservoir elevations in the regional study area would not be expected to result in adverse fish resources or aquatic habitat impacts due to the alternatives. Cumulative conditions, however, would result in potentially significant impacts to the following conditions affecting fish resources:

- Availability of littoral habitat for warmwater fish at Folsom Reservoir and an increase of nest-dewatering events;
- Availability of rearing habitat for juvenile fall-run chinook salmon and steelhead and increased water temperatures of the lower American River;
- Availability of useable habitat for splittail in the lower American River;
- Availability of littoral habitat for warmwater fish at Shasta Reservoir;
- Increased water temperatures of the upper Sacramento River, including additional exceedances of NMFS Biological Opinion temperature thresholds for winter-run chinook salmon and decrease in the long-term average early-lifestage survival for fall-run and winter-run chinook salmon;
- Increased water temperatures of the lower Sacramento River such that additional exceedances of temperature thresholds would occur;
- Decreased Delta outflow and shifts in X2 (2 parts per thousand (ppt) isohaline in the Delta);
- Changes in elevation and storage at Oroville Reservoir such that warmwater fish resources may be adversely affected; and
- Changes in flow of the lower Feather River such that fish resources may be adversely affected.

The assessment of the Action Alternatives' incremental contribution to these cumulative effects indicate that the Proposed Project and Upstream Diversion Alternative would not result in significant effects upon these resources or conditions.

Terrestrial Resources

The No Action/No Project Alternative would not result in disturbance of riparian or other vegetation and associated habitats at the project site beyond that which already occurs as part of the seasonal pump station installation under the existing condition. Because the site is already highly disturbed from past Auburn Dam construction activity, the Proposed Project and Upstream Diversion Alternative would result in vegetation/habitat loss, including riparian and wetland areas. Temporary habitat disturbance would result from construction of the proposed facilities and permanent habitat loss would occur due to placement of water supply and public river access features, including placement of excavated materials removed from the river channel within the study area (Figures S-7 and S-11). Overall, under the Proposed Project, approximately 3.35 acres

of vegetation and up to 37 acres of "disturbed" area (i.e., grasses, scattered shrubs, and trees) would be either temporarily or permanently affected, as shown below:

Table S-4
Proposed Project Construction Impacts on Habitat Types (acres)

Urban	0
Potential Wetlands	0.01
Riparian Vegetation	1.06
Early Successional Oak Woodlands	2.08
Late Successional Oak Woodlands	0.20
Disturbed	37

Under the Proposed Project, restoration of the river channel would result in the replacement and enhancement of riparian/wetland areas at the site. Additional mitigation of potential wetlands, potentially involving restoration, enhancement or creation of wetland area, would be implemented according to consultations with resource agencies for the permanent loss of acreage that would occur if the Upstream Diversion Alternative were selected. Cumulative facilities-related impacts would be less than significant.

Bank and slope erosion would be common for annual flows much less than the 100-year flood event, and passive restoration according to site potential would occur naturally once the disturbed areas within the project area stabilize in response to natural processes associated with channel formation and seasonal fluctuations in river levels. However, until the extent of floodplain inundation and other channel characteristics have been established, it would not be practical to implement a revegetation program because the benefits of these efforts may be lost during high water events. Reclamation, through implementation of the environmental commitments included in the Mitigation Plan (Appendix D to the Final EIS/EIR), would monitor the area for natural vegetation growth and habitat establishment to determine whether adaptive resource management actions would be appropriate or needed in the project study area. Please see Master Response 3.1.5, Project Area River Restoration and the Mitigation Plan (Appendix D to the Final EIS/EIR).

Special-Status Wildlife Species

Pre-construction site surveys would be conducted to determine the presence of habitat and, if necessary, relocate individuals of California horned lizard, spotted bat, greater western mastiff-bat, yellow-legged frogs, western toads, and chorus frogs. A survey for red-legged frogs was ongoing in early June 2002 pursuant to the USFWS 1997 protocol and as a follow-up to the March 2002 red-legged frog habitat assessment performed at the project site. Findings of the survey will be provided to USFWS as part of the ESA Section 7 consultation for the Proposed Project. No red-legged frogs were sighted in the project area during the first phase of the observation period. However, should red-legged frogs be found to use the project area ponds, appropriate terms and conditions to mitigate for potential project impacts would be incorporated into the USFWS Biological Opinion for the project and included in the construction contractor specifications. Reclamation may not issue its Record of Decision for the project until the USFWS ESA consultation is complete. Additionally, construction worker briefings would be held to provide

educational materials regarding what to do should these species be observed during construction. These measures are included in the Mitigation Plan (Appendix D to the Final EIS/EIR) and would minimize habitat and special-status species impacts to less than significant.

Diversion-Related Effects to Terrestrial Resources Within Regional Water Bodies

Diversion-related changes to CVP operations affecting river flows and reservoir elevations would not be anticipated to result in adverse effects to riparian vegetation, open-water habitat, or associated wildlife habitat for the lower American River, upper or lower Sacramento River, the Delta, or Folsom, Shasta, or Trinity reservoirs under any alternative or under the cumulative condition. Future increased demands on the SWP would result in potentially significant impacts at Oroville Reservoir and along the lower Feather River. These effects are not directly or indirectly related to the Proposed Project.

Water Quality

The No Action/No Project Alternative and Action Alternatives would not be expected to result in significant water quality impacts at the project site. Avoidance of significant construction-related increases in sedimentation and turbidity would be accomplished through the implementation of environmental protection measures including standard Best Management Practices (BMPs) to control erosion of rock and soils from disturbed areas and to minimize, to the extent feasible, in-river use of construction equipment. Regulatory agency review and permitting processes would be completed under all alternatives and would require the implementation of additional site-specific terms and conditions to be determined through coordination with the U.S. Army Corps of Engineers (Corps), Regional Water Quality Control Board (RWQCB), and CDFG. The terms and conditions of the regulatory permits would include provisions to handle post-construction erosion and sedimentation that would result from restoration of the river channel.

Potential increases in constituent concentrations associated with decreased dilution capacities of the lower American River; upper and lower Sacramento River; Folsom, Shasta, or Trinity reservoirs; or the Delta would not be anticipated to result in state or federal drinking water quality criteria or standards to be exceeded, relative to the existing condition, under any of the alternatives. However, under the cumulative condition, reductions in river flows and reservoir elevations and shifts in X2 at the Delta would potentially lead to such violations. The assessment of the Action Alternatives' incremental contribution to these impacts indicates the Proposed Project or Upstream Diversion Alternative would have less than considerable effects.

Recreation

Project Trail Use During Construction Period

Under the Proposed Project and Upstream Diversion Alternative, some closure/restricted public access within the project construction areas would be necessary to protect the public and facilitate pump station construction, bypass tunnel closure, and river channel restoration. Restricted access in the project area is appropriate and required to protect the health and safety of the general public from the various hazards (i.e., heavy construction equipment operations, blasting, extensive

earthwork and unsafe materials, including explosives) associated with construction of the Action Alternatives as well as to protect the construction area and equipment.

The total area closed to public access would vary by construction phase and activity. Several trails pass around or through the project study area including Pioneer Express, Cardiac Hill, Cardiac Hill Bypass, Auburn-to-Cool, Riverview, Western States, Robie Point Fire Break, Pointed Rocks Fire Break and Olmstead Loop trails (**Figure S-14**). Construction of the Proposed Project would not affect public use of the Pioneer Express, Western States, Robie Point Fire Break, Pointed Rocks Fire Break or Olmstead Loop trails. Access impacts to these trails due to project construction would be less than significant.

Special events or activities utilizing these trails would not be expected to be adversely affected by construction of the Proposed Project. CDPR would work with special event coordinators including the Western States Endurance Run, Tevis Cup Western States Trail Ride and the American River 50-Mile Endurance Run, and Reclamation's construction contractor to avoid trail access impacts for these events. Coordination with event sponsors would enable CDPR and Reclamation to ensure safe, adequate passage along event routes for the set-up, operation and break-down/clean-up associated with each event. The impact of the Action Alternatives upon these annual trail events would be considered less than significant.

Auburn-to-Cool Trail

Under the Proposed Project, the closure of the Auburn Dam bypass tunnel and restoration of the North Fork American River to its historic channel would result in the bifurcation of the Auburn-to-Cool Trail, which currently crosses the dewatered portion of the river. Although the Auburn-to-Cool Trail serves mountain bikers, equestrians, runners, and hikers, the route is not a designated recreational trail. Rather, the Auburn-to-Cool Trail makes use of Auburn Dam Project construction roads on the south side of the canyon from the Olmstead Loop near Cool, crosses the dewatered section of river channel, and then follows construction roads up the north side of the canyon. Though the official route follows the primary construction road down to the Auburn Dam site from Maidu Drive to the bottom of the canyon, trail users follow several alternate routes up the north side of the canyon, including a steep dirt track that follows the approximate alignment of PCWA's temporary pipes.

The closure of the Auburn Dam bypass tunnel is a proposal made by, and which would be undertaken by, Reclamation in response to (1) assertions by the State of California that, in the absence of a Congressional commitment to proceed with the long-stalled Auburn Dam, Reclamation lacks authority to continue to divert water from the dewatered stretch of the North Fork American River through the bypass tunnel, and (2) the State of California's insistence that the river be restored to its historic (pre-Auburn Dam) channel. PCWA has tentatively agreed, subject to CEQA compliance, that the best location for a permanent pump station may be in a spot that is currently dewatered; but PCWA is by no means the primary actor in closing the tunnel and restoring the river. Nor does it control Reclamation's decision to do so. In fact, as Reclamation has acknowledged, the federal government has a contractual obligation, under the so-called "Land Purchase Agreement," to provide an interim pumping facility or alternative water supply until the Auburn Dam was completed. PCWA's interest is to obtain a permanent pump station that will

Figure S-14

allow it to resume the water supply operations interrupted by Auburn Dam construction activities, and to expand its diversions, consistent with existing water rights, to address increasing demands for water due to population growth in the PCWA service area.

It is PCWA's position, then, and not necessarily Reclamation's, that PCWA is not undertaking any discretionary actions that would constitute the sole or even primary cause of the bifurcation of the Auburn-to-Cool Trail. Instead, responsibility for loss of the Auburn-to-Cool Trail lies primarily with Reclamation, as the entity responsible for closing the tunnel and returning the North Fork American River to its historic channel. These distinctions follow from the very nature of the agency decisions at issue. Thus, the Proposed Project should be understood as a combination of two independent but closely related actions in which Reclamation proposes both to restore the river and to build PCWA a new pump station, and PCWA proposes to enter into a contract accepting ownership of such new facilities, and operate them for water supply purposes, thereby relieving Reclamation of its obligations under the Land Purchase Contract.

Because, from a CEQA standpoint, PCWA's actions will not be the primary cause of the impacts on the Auburn-to-Cool Trail, PCWA cannot be solely responsible for attempts to mitigate those impacts. Instead, assuming that PCWA is only partly responsible for the impact, PCWA staff, as co-author of the Final EIS/EIR, recommend that the PCWA Board allocate a maximum of $500,000 towards future construction of a river crossing or similar mitigation – *if*, after a project-specific NEPA/CEQA process, Reclamation and CDPR choose to proceed with such a crossing, and only at a point in time at which the pump station has cleared all regulatory and other legal hurdles, so that it is clear that a new pump station actually will be built and operated. Such an amount is intended to approximate what might be called a "fair share" contribution to the total estimated costs of such a process and such a crossing, which are currently estimated to be $1.5 million.

Reclamation agrees with PCWA that the most appropriate venue for considering a new crossing is a separate planning and environmental review process, such as the pending update of the General Plan/Resources Management Plan for the Folsom Lake SRA. Reclamation, therefore, further believes that the current EIS process for the American River Pump Station Project is not the proper vehicle or venue for developing a potential crossing or other means of preserving a multi-use route between Auburn and Cool. For these reasons, Reclamation does not, as part of this process, propose any mitigation measure addressing Reclamation's contribution to impacts associated with bifurcation of the Auburn-to-Cool Trail. Importantly, though, Reclamation will cooperate in any CDPR-initiated planning and environmental review process addressing a proposal to build a crossing with state- or local-funding.

As to PCWA, there is legal authority under California law suggesting (by analogy) that such a contribution can constitute sufficient mitigation for any impact caused by PCWA's activities. This analogous authority provides that, where a particular project will incrementally contribute to a larger cumulative impact, the project's incremental contribution can be adequately mitigated if the project "is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact." (Cal. Code Regs., tit. 14, div. 6, ch. 3 ["CEQA Guidelines"], § 15130, subd. (a)(3)). Although the bifurcation of the Auburn-to-Cool Trail is not, strictly speaking, a "cumulative impact," it is analogous in the sense that the impact is caused either by Reclamation, acting alone, or by Reclamation and PCWA acting together. Thus, a "fair

share" contribution to a new bridge is a fair and reasonable means by which PCWA can attempt to facilitate the ultimate approval and construction of a replacement river crossing or similar mitigation measure (e.g., construction of a new multi-use trail allowing mountain bikers and others to use the Highway 49 Bridge or Mountain Quarries Bridge to cross over the North Fork American River).

Because any such crossing will involve environmental issues requiring project-specific analysis, and all actions necessary to implement a replacement crossing must be taken by entities other than PCWA, another and separate environmental review process will be required. Such a process will likely involve preparation of a joint NEPA/CEQA document, with Reclamation and CDPR acting as joint lead agencies.

PCWA and Reclamation have had numerous conversations with CDPR and the Resources Agency of the State of California, in which the latter entity has indicated that it will devote a total of $1 million to environmental review for a replacement river crossing and, eventually, construction of such a project – if, that is, the resulting environmental impacts are deemed acceptable after compliance with NEPA and CEQA.

CDPR and Reclamation will have to decide between themselves exactly how to proceed with environmental review for any bridge proposal. The two most likely possible approaches are (1) to prepare a project-specific environmental document focusing solely on the bridge and alternatives and (2) to fold bridge planning into the pending revision of the General Plan/Resource Management Plan for Folsom Lake SRA, which is contiguous to Auburn SRA. Under either approach, the two agencies will focus their efforts on identifying the best possible location for a new crossing or other measures that can mitigate the impact of the bifurcated Auburn-to-Cool Trail.

Project Area Trails and Recreation Uses and Plans

The Proposed Project would result in improved trail conditions and river access near Oregon Bar. Project design includes measures to minimize mixed-use conflicts so that equestrians, boaters and pedestrians can safely enjoy the area. The No Action/No Project and Upstream Diversion alternatives would maintain river flows through the bypass tunnel. The tunnel is considered to pose a safety hazard and keeping it open is in conflict with direction given by the State Attorney General's office. This would be a significant impact.

The increased recreation use at the site would generate additional demand for parking at the North Fork/Middle Fork confluence. Because of the already impacted conditions on peak recreation days, this would be considered a significant, unavoidable impact. As with other recreation issues in the Auburn SRA, Reclamation and CDPR would develop long-term management goals, policies and programs as part of the upcoming comprehensive plan. The Action Alternatives would not result in conflict with the American River Parkway Plan or state and federal Wild and Scenic River acts' designations.

Whitewater Boating Opportunities

The Action Alternatives would result in changes in operation of the MFP to continue to meet water supply and environmental instream flow requirements. Modification of releases would affect the

frequency and duration of Middle Fork river flows that provide suitable whitewater rafting flows. Although the analysis of potential impacts upon whitewater boating on the Middle Fork American River is considered conservative, the loss of recreation opportunity would be considered a significant impact upon river boaters and commercial rafting. The Proposed Project river restoration element provides increased river rafting opportunity along the North Fork American River below the confluence. Although the anticipated Class I to Class III character of the restored river section would not provide a replacement for the more challenging boating opportunities lost on the Middle Fork, it would open up an additional reach of the river for boating activities not currently available in the project area. It is also noted that CDPR would not propose or permit commercial river rafting in this reach of the American River as part of the Proposed Project. Increased boating opportunities in the project area would not exist under the No Action/No Project or Upstream Diversion alternatives.

Diversion-Related Recreation Effects in Regional Water Bodies

Water-based and enhanced recreation would not be adversely affected along the upper or lower American River; upper or lower Sacramento River; Feather River; Delta; or Folsom, Shasta, Trinity, or Oroville reservoirs under any of the alternative conditions. However, cumulative conditions would result in potentially significant impacts upon recreation opportunities during some months or years for the lower American River, Feather River, Folsom Reservoir boating and swimming, Shasta Reservoir boating, and Oroville Reservoir activities. Further assessment of these conditions indicate that the Action Alternatives would not have a substantial or considerable contribution to these conditions.

Visual Resources

The visual character of the project area would not change substantially under the No Action/No Project or Upstream Diversion alternatives. The Proposed Project would provide an enhancement of the local viewshed through river restoration and closure of the bypass tunnel. Construction activities would involve use of up to 54 construction vehicles (heavy equipment) and up to 50 construction workers during peak activity; however, views of the site are limited to portions of the pump station location and parts of access roads. Few receptors have views of the Auburn Dam batch plant site where the Proposed Project would result in construction of a "rustic" parking area associated with the Oregon Bar river access feature. The partial and intermittent views of these locations would not be substantially negatively altered over the long-term. Recreation trails would be closed periodically throughout the construction period minimizing the visual effects upon recreationists.

The appearance of the pump station and intake/diversion structures would be improved over the existing condition. The pumps would be within a specific block enclosure of a light neutral/earthtone color to blend with the surroundings. Closure of the bypass tunnel under the Proposed Project would be performed in such a way as to blend with existing formations. Increased use of the site for recreation-related activity would change the look of the area from some of the residential and trail viewpoints. Because these uses are consistent with the planning goals for the area and would be managed to minimize the number of people and hours of use, these changes would be considered less than significant. Additionally, all amenities to be provided would be designed in compliance with CDPR guidelines.

Reductions of river flows and reservoir elevations associated with the Action Alternatives and related changes to CVP operations would not result in adverse visual effects; with few exceptions water surface or flow fluctuations generally would be within ranges experienced under the existing condition for all alternatives. Occurrences of flows or surface water elevations below the existing condition would not be of sufficient frequency to result in an overall long-term change in visual character. No significant cumulative impacts upon visual resources would be expected. Changes within the SWP system, however, due to increased system demands may result in potentially significant impacts upon visual resources of the lower Feather River and at Oroville Reservoir. These effects would occur even without implementation of the project or future CVP actions.

Cultural Resources

No sensitive cultural resources or historic properties are known to occur within the Area of Potential Effect (APE) at the project site or within the construction zone of the alternatives. The high level of past disturbances at the site from Auburn Dam construction activities make it unlikely that any buried cultural resources remain within the APE. The construction management plan for the selected alternative would include standard federal and state measures to be implemented in the event buried cultural resources or human remains are uncovered.

Reductions or increases of river flows and reservoir surface water elevations below or above those typically experienced have the potential to expose resources that are usually inundated or to inundate resources that have already been exposed. In most locations within the study area, river flows and surface water elevations at reservoirs would be within ranges similar to the existing condition and would not result in an increased potential for damage or exposure of cultural resources. At Shasta Reservoir, however, under the cumulative condition, reduction of the surface water elevation below minimum levels anticipated for existing conditions would be potentially significant, and the contribution of the Action Alternatives' to this condition would be considerable. Reclamation has initiated consultation with the SHPO regarding this potential impact. Implementation of an Action Alternative would, therefore, include development and implementation of a Programmatic Agreement with SHPO to adequately address the potential concerns related to changes in Shasta Reservoir elevations. The National Advisory Council on Historic Preservation and other interested parties would participate in the development of the terms of the agreement to ensure protection of known or potential resources at this location. These efforts would mitigate this potential impact to less than significant.

Increased future demands upon the SWP system also would result in potential for increased exposure of cultural resources along the lower Feather River or in the Oroville Reservoir drawdown zone. The Action Alternatives would not contribute to these effects.

Power Supply

Increased North Fork American River diversions and associated changes in CVP operations would result in minor reductions of gross CVP hydropower generation and dependable capacity and increase water supply pumping energy requirements for the Folsom Reservoir pumping plants (Folsom and El Dorado Irrigation District (EID)). Under the cumulative condition, these effects would be potentially significant. Future demands upon the SWP system also would result in potentially significant impacts upon power supply at Oroville Reservoir. The assessment of the

Action Alternatives' incremental contribution to these impacts indicate a less than significant change.

Land Use

Project Area Land Use

The Proposed Project would result in closure of the bypass tunnel in compliance with the State Attorney General's office direction to do so; the other alternatives would result in a conflict with this direction, as the tunnel would remain open. River restoration and the interim public access facilities, under the Proposed Project, would be consistent with the long-range planning goals of Reclamation and CDPR for uses in the Auburn SRA. The other alternatives would not result in these improvements. No land use designations or zoning changes would be required, although all alternatives would result in increased water supply utility-related activity, either seasonally, or year-round. No businesses, homes or individuals would be displaced as a result of any of the alternatives.

Placer County Water Agency Water Service Area Growth Inducement

Rapid growth has occurred in Placer County since the mid-1980s and growth demands have pushed the limits of PCWA's existing water supply delivery means from both the Drum-Spaulding Project and the MFP seasonal pump station. Further growth and development have been approved through local planning process (i.e., different City and County general plans).

PCWA's need for a larger pump station and the added capacity associated with it does not increase the quantity of PCWA's existing water entitlement. The proposed larger pump station facility would only enable PCWA to withdraw the quantity of water to which it is rightly entitled under the law, in accordance with its Federal Energy Regulatory Commission (FERC) license and two Water Rights permits granted by the SWRCB.

It is the responsibility of planning agencies to foresee future needs and try to develop land use development alternatives that will meet impending demands while being environmentally sound and beneficial to the overall needs of the community. PCWA does not possess land use regulating authority; however, it is PCWA's mandate to meet water demand within its service area. Provisions in existing state and county planning efforts running through 2030 have anticipated what future water supply demands will be under mid-range growth and build-out projections, and have established alternative water sources within the Central Valley as well as other combinations of efforts including reduction over time in the amount of MFP water supplied to SSWD.

PCWA's legal duties arise in part from the Placer County Water Agency Act, which is found in Section 81-1, et seq., of the appendices to the California Water Code. Section 81-4 of that enabling legislation gives PCWA the power "to do **any and every lawful act** necessary in order that sufficient water may be available for any present or future beneficial use or uses of the lands or inhabitants within the agency, including, but not limited, to, irrigation, domestic, fire protection, municipal, commercial, industrial and all other beneficial uses and purposes." (Emphasis added.) Section 81-4.3 gives PCWA the authority to appropriate and acquire water and...[to] utilize...water for any purpose useful to the agency." Section 81-6 gives PCWA the authority to cooperate and

contract with Reclamation with respect to the "construction of works" for "water supply" and other purposes.

PCWA also is subject to the Urban Water Management Planning Act (Water Code, Section 10610 et. seq.) as amended in 2001 in response to the Legislature's concern that California's water supply agencies might not be engaged in adequate long-term planning. That Act requires PCWA, as an "urban water supplier," to maintain an "urban water management plan" that must identify existing water supply and demand, and must identify any new water sources required to satisfy demand as projected at least 20 years into the future. The projected 20-year water supply must account for "average, single-dry, and multiple-dry water years."

In predicting 20-year water demands, PCWA, like other urban water agencies, must rely on "data from the state, regional, or local service agency population projections[.]" Thus, to the extent that Placer County and its incorporated cities (e.g., Roseville, Rocklin, Lincoln, Auburn and Loomis) anticipate large population increases in their adopted general plans, PCWA is required to identify water sources necessary to serve such planned development, and is not in a position to refuse to comply with that legal obligation as a means of reducing the "growth-inducing" effects of obtaining new water supplies.

The PCWA Surface Water Supply Update for Western Placer County (PCWA 2001) contains an evaluation of the build-out demands under the existing general plans of the cities and the county within its present service area, based on a mid-range estimate of probable growth rates (PCWA 2001). The existing general plans permit development as indicated by the plans, without future evaluation. The Surface Water Supply Update indicates that the build-out demands that are documented in those plans extend to 2030 and require and additional 70,000 AF of water to be supplied by PCWA. These water demand projections assume PCWA's continued implementation and support for water use efficiency measures, as state on page 1-6 of the Draft EIS/EIR.

PCWA's Surface Water Supply Update report, which shows PCWA's long-term need for the construction of new diversion, treatment, transmission and distribution infrastructure facilities, from both the American and Sacramento rivers, of equal capacity to PCWA's existing water supply entitlements in order to meet the future demands of Placer County. Ultimately, the size of these facilities may be smaller in their final phases as PCWA moves forward with planned conservation and water use efficiency measures and others move forward with planned reclamation projects. However, nothing except a building moratorium in Placer County will allay the need to construction the American River Pump Station now.

It is unlikely that a precedent will be set allowing further construction of larger pump stations along the Middle Fork of the American River in the future, because this would require an increase in PCWA's overall water entitlements from a river whose water is already in high demand and highly regulated. Any future request for an increase in water rights allocations or alterations to annual use patterns from existing sources would require extensive and long-term adjudication affecting a multitude of numerous planning policies and regulatory actions. This would include new water rights permits, which would be opposed by downstream users, Reclamation, the Water Forum, and other environmental groups.

Geology and Soils

The No Action/No Project Alternative would not result in changed geology or soils conditions at the site. Development of the Proposed Project or Upstream Diversion Alternative would result in the short-term creation of unstable slopes over the course of construction; however, these areas would be stabilized prior to re-opening the site for public access. Additional geotechnical investigations would be conducted based on the final design to develop site-specific construction and slope stabilization methods and refine facility placement. Monitoring of construction activities would be performed by a registered geotechnical engineer. Public use of the river area under the Proposed Project would result in the potential to increase exposure to unstable areas within the canyon. Measures to minimize these impacts include posting warning signs and enforcing compliance by increased patrolling of the area.

Transportation and Circulation

The No Action/No Project Alternative would not generate traffic above what occurs under existing conditions. Under the Action Alternatives, up to 146 additional construction-related trips (construction workers and supply deliveries) could occur during peak levels of construction activity. On average, the number of additional trips would be up to 116. The project area roads have sufficient vehicle and load capacity to handle the additional trips and heavy construction equipment. Trips along Maidu Drive have the potential to reduce the level of service (LOS) at the Maidu Drive/Burlin Way intersection, if all trips were to occur during the peak 15-minute morning period when commute traffic and school-related trips travel through the intersection (8:00 to 8:15 a.m.). To avoid this impact, the Mitigation Plan includes a measure in which Reclamation would ensure that the construction contractor limit personnel travel through this intersection during the morning peak hour (7:15 a.m. to 8:15 a.m.) as an element of the Construction Traffic Management Plan. As part of implementing the plan, Reclamation and the construction contractor also would coordinate with the city public works department, local emergency service providers, and local residents to provide information regarding construction activity and timing.

The Proposed Project also would result in additional vehicle trips along Maidu Drive related to use of the public river access features. On a peak day, up to 206 river access-related trips may occur. Under a worst-case assessment, when these trips, commute trips, and school related travel all occur concurrently during the peak 15-minute period before school, the LOS would decrease from C to D. This LOS does not require mitigation by City of Auburn standards. Overall, the Proposed Project traffic impact would be less than indicated because (1) typical use of the river access area would generate less traffic than assumed for peak holiday and summer weekend use; (2) peak use periods would not coincide with commuter an school-related trips; and (3) river access trips would not occur during the morning peak hour. This impact is considered to be less than significant.

An assessment was performed to evaluate potential pedestrian impacts related to increased travel along Maidu Drive. The results indicate that current pedestrian use of Maidu Drive (15 pedestrians in morning peak hour before school) does not reach California Department of Transportation (CALTRANS) thresholds that would warrant implementation of additional actions such as crossing guards (30 pedestrians), warning beacons (40 pedestrians) or traffic signals (70 pedestrians).

Under cumulative conditions, the LOS would decrease at the Maidu Drive/Burlin Way intersection whether the Proposed Project is constructed or not. Future subdivisions all would be required to pay City of Auburn mitigation fees for use toward implementation of traffic control measures. The Proposed Project Mitigation Plan includes payment of mitigation fees to the City of Auburn. No further mitigation is required.

Air Quality

The Proposed Project and alternatives would result in increased emissions of ozone precursors (reactive organic gases (ROG) and nitrous oxides (NO_x)) and particulate matter of less than 10 microns in size (PM_{10}). The evaluation used thresholds of significance and construction emission calculation worksheets from the Placer County and El Dorado County air pollution control districts. With the exception of NO_x emissions during construction of the Proposed Project, all other air pollutant emissions of concern would be below the significance thresholds and would be considered less-than-significant impacts. For the Proposed Project, all feasible NO_x emission control measures would be implemented, however, the ability to reduce these emissions below the APCD quarterly emission threshold is unknown. The Mitigation Plan includes a measure to ensure that Reclamation and the construction contractor would work with the Placer County and El Dorado County APCDs to ensure this impact is reduced to the extent possible. This would remain a potentially significant impact. This impact also would be cumulatively considerable in the event other construction activities in the air basin are unable to fully mitigate for NO_x emissions. Emissions of ROG and PM_{10} would be reduced below the quarterly emission threshold for all other conditions through the implementation of standard vehicle and dust emission controls recommended by the APCDs. An air quality monitoring program and emissions inventory documentation would be undertaken to ensure emissions would be maintained below the construction thresholds.

The Action Alternatives would result in additional travel to the project site for operation and maintenance visits. The vehicular emissions from these trips would not be significant. In addition to project operation trips, the Proposed Project would result in up to 206 river access-related trips in the project study area, on a peak recreation day (anticipated to occur on summer weekends and holidays, if the facilities are open for use). The air pollutant emissions associated with these trips would be well below the Placer County and El Dorado County air pollutant thresholds of significance for all pollutants of concern (ROG, NO_x and PM_{10}) for 2005, 2010 and 2015.

Operation of the pump station facilities would not result in a substantial increase in emissions of pollutants of concern.

Noise

Existing noise levels exceed the City of Auburn noise standard for residential land uses adjacent to the project area. The extended operational period under the No Action/No Project Alternative would result in a potentially significant unavoidable impact (noise levels that do not comply with City ordinance). Construction of one of the Action Alternatives would result in increased noise levels at the project site. The Mitigation Plan requires that Reclamation ensure the construction contractor implement all noise reduction measures and schedule noise-generating construction activities within hours specified by local noise ordinances (i.e., City of Auburn, Placer County and

El Dorado County). Implementation of these measures reduces construction-related noise impacts to levels considered less than significant. Additionally, Reclamation would implement a public notification program to provide local residents and other interested parties with information regarding the timing of construction activities.

Operation of the pump station under one of the Action Alternatives would result in lower noise levels, relative to the seasonal pump station, as the new pumps would be enclosed in a stone-walled structure that would be designed and constructed to provide noise attenuation to comply with the City of Auburn noise standards.

The additional noise sources associated with the Proposed Project include increased use of the project area for river access. Estimated increases in traffic noise along neighborhood roadways would be less than 3 decibels (dB), which is not perceptible to the human ear. Additionally, within the Auburn SRA, Reclamation would require CDPR to enforce the provisions of CCR 4320 - Peace and Quiet, which regulates use of noisy devices (such as machinery or electronic equipment). Overall, the increases noise levels associated with the Proposed Project would not be significant.

Public Health and Worker Safety

Hazardous Materials Use and Storage

The No Action/No Project Alternative would not substantially change practices related to hazardous materials use or storage on-site compared to the existing condition. Presently, there are no hazardous materials stored on-site. Construction of the Action Alternatives would result in a substantial short-term increased use and storage of commercially available but potentially hazardous materials (e.g., fuel, paint, solvents, oils, concrete curing compound) and explosives at the project site potentially increasing public exposure and worker safety risks due to use of these substances. Additionally, the Action Alternatives involve substantial amounts of excavation and blasting, including serpentine rock that may result in the release of asbestos fibers to the air and surrounding environment. The Mitigation Plan for the selected alternative would include extensive public and worker protection measures to minimize risk and reduce exposure to such materials.

Fire Management - Project Construction

Reclamation would review and approve and ensure that the construction contractor prepare and carry out an effective fire protection and prevention program covering all phases of construction for the selected alternative. Representatives of CDFFP and/or other local fire protection agencies would participate in the construction conferences before and during project construction to explain fire hazards and procedures for protection and prevention. The construction contractor would be required to provide and maintain fire suppression supplies and tools and, at all times when work is in progress, a sufficient number of employees familiar with use of the equipment. Construction fire breaks would be created in areas where grass, brush, or other natural fuels are present and where roads or creek beds will not serve the purpose. The firebreak would be within the right-of-way acquired by the government and consist of a 10-foot wide strip with flammable material either cleared or covered with mineral soil. All construction operations shall be in compliance with

Reclamation Construction Safety Standards and other applicable federal and state codes that regulate construction fire protection and prevention.

Fire Management - Auburn SRA and Public River Access Use

Increased public use of the Auburn Dam and Oregon Bar areas at the site and of the North Fork American River from the confluence and downstream past the project area introduces an increased fire risk associated with human activity in the canyon. Reclamation, CDPR, and the California Department of Forestry and Fire Protection (CDFFP) are preparing a comprehensive fire prevention and suppression plan for the Auburn SRA, including the project area. The plan will be in place prior to opening the site for public access.

A Comprehensive Fire Management Plan is being prepared through coordination and consultation with local agencies, including Fire Safe Councils for the Auburn Dam and Reservoir Project lands. As part of this effort, CDPR, CDFFP, and Reclamation have prepared an Auburn State Recreation Area Prefire Management Plan (January 2002). This plan is included as Appendix A to the Final EIS/EIR.

The Comprehensive Fire Management Plan will include all aspects of public and firefighter safety and prevention and fire suppression activities. The Fuels Management Action Plan component of the Comprehensive Fire Management Plan has been completed and is included in the Prefire Management Plan. This element provides out a process to implement fire management strategies for the Auburn SRA lands that are a priority interface with the Greater Auburn Area. As a major component of mitigation for the potential of increased fire danger on public lands within the interface areas directly affected by the American River Pump Station Project, ground implementation of the Fuels Management Action Plan is planned to be completed prior to opening the area for public use. Through coordination and partnerships with local neighborhoods, citizen groups, and others, CDPR and Reclamation, will work to implement appropriate fire management strategies as prescribed in this plan. The interface lands will be divided into priority areas with each having its own site-specific environmental review process.

Shaded fuel breaks will be developed on public lands that interface private lands directly affected by the American River Pump Station Project. Creating a shaded fuel break involves carefully planned thinning of dense vegetation, intended to inhibit fire from easily moving from ground into the overhead tree canopy. A shaded fuel break does not involve the removal of all vegetation in a given area. Shaded fuel breaks, to be most effective, must be accomplished in conjunction with the other prescriptions, such as defensible space and defensible landscapes, which would occur largely on adjacent private properties. The managing partners of the comprehensive fire plan are working with local entities and citizen groups to implement the Fuels Management Action Plan.

Shaded fuel breaks also would be constructed along the public river access roads and around the proposed parking and vehicular turnaround areas. Access road improvements would meet emergency vehicle access needs. Additionally, CDPR would prohibit open fires within the project area which would reduce the risk of wildfire potentially related to increased public use.

Indian Trust Assets

Indian Trust Assets (ITAs) are legal interests in property and rights held in trust for Indian tribes or individuals by the United States and include Indian reservations, rancherias, and allotments. No ITAs have been identified within the project study area. The Proposed Project or alternatives would not result in adverse impacts to ITAs.

Essential Fish Habitat

The Magnuson-Stevens Fishery Conservation and Management Act requires federal agencies to consult with NMFS regarding potential impacts on EFH. EFH only applies to commercial fisheries and includes identified waters and substrate necessary for spawning, breeding, feeding, or maturing. In the study area, EFH includes the lower American River to Nimbus Dam, waters of the Delta, the Sacramento River up to Keswick Dam, and tributaries up to impassable barriers for chinook salmon habitat. Implementation of the Proposed Project or alternatives would not be expected to adversely affect fall-run chinook salmon essential fish habitat.

Environmental Justice (Executive Order 12898)

No disproportionately high or adverse environmental or human health effects on minority or low-income communities would be expected to occur with implementation of the Proposed Project or alternatives.

Irreversible and Irretrievable Use of Resources

Implementation of the Proposed Project or alternatives would result in the irreversible commitment of construction materials, labor, land area devoted to facilities, and energy required for construction, operation, and maintenance.

Under the Upstream Diversion Alternative, up to 0.11 acre of wetlands would be permanently lost in the area. This loss would be mitigated through replacement, creation, or mitigation banking as determined appropriate through resource agency permitting.

Short-term Use of the Environment Versus Long-term Productivity

Installation of a year-round pump station would increase the reliability and availability of water supplies for PCWA. This increased reliability and availability would help PCWA meet current and projected demands, thus supporting economic viability of the project service area. The Proposed Project or Upstream Diversion Alternative would have short-term impacts on air quality, habitat for wildlife species, recreation, and noise, but these impacts would not be expected to alter the long-term productivity of the natural environment.

The Proposed Project includes restoration of the currently dewatered segment of the North Fork American River, resulting in increased habitat availability for fish and aquatic resources in the project vicinity. This habitat alteration represents a long-term beneficial effect for fish resources and aquatic habitat. Additionally, fish passage conditions through the project area would be

greatly improved through river restoration, providing a long-term benefit to fish species of the American River.

The Proposed Project would have long-term beneficial effects on water supply, fish and terrestrial resources and recreation. On balance, these long-term improvements or benefits outweigh the potentially significant short-term impacts to the environmental resources in the project area.

Endangered Species Act Compliance

The USFWS and NMFS have defined the different conclusions and determinations that can be reached through consultation with these agencies. These different conclusions are *"it is likely to adversely affect," "it is likely to jeopardize proposed species/adversely modify proposed critical habitat" and "it is not likely to adversely affect"* (USFWS and NMFS 1998). *"It is likely to adversely affect"* is the appropriate conclusion if any adverse effect to listed species may occur as a direct or indirect result of the proposed action, or indirect result of the interrelated or interdependent actions, and the effect is not discountable, insignificant, or beneficial. In the event the overall effect of the proposed action is beneficial to the listed species, but also is likely to cause some adverse effects, then the proposed action *"is likely to adversely affect"* the listed species. If incidental take is anticipated to occur as a result of the proposed action, an *"is likely to adversely affect"* determination should be made (USFWS and NMFS 1998). *"It is likely to jeopardize proposed species/adversely modify proposed critical habitat"* is the appropriate conclusion when the action agency or USFWS and/or NMFS identify situations where the proposed action is likely to jeopardize the proposed species or adversely modify critical habitat. If this conclusion is reached, conference is required (USFWS and NMFS 1998). *"It is not likely to adversely affect"* is the appropriate conclusion when effects on listed species are expected to be discountable, insignificant, or completely beneficial (USFWS and NMFS 1998).

Based on analysis of the existing environment in the Proposed Project area, the habitat status in the Proposed Project site, the regional study area, and potential project effects, it is concluded that the Proposed Project is not likely to adversely affect federally listed fish species, nor is it expected to jeopardize the continued existence of any federally listed species.

Overall, in the Sacramento River and the Delta and according to the definitions described above, the Proposed Project relative to the existing condition is not likely to adversely affect the Central Valley ESUs of steelhead, spring-run chinook salmon, fall-run and late fall-run chinook salmon, Sacramento winter-run chinook salmon, delta smelt, and Sacramento splittail. Long-term water temperatures in the upper Sacramento River would not change relative to the existing condition, and monthly mean water temperatures would remain essentially equivalent under both scenarios. Long-term average flow in the lower Sacramento River (i.e., Freeport) would not change more than 0.2 percent during any month of the year, and monthly mean water temperatures would remain essentially equivalent in all but one year of the simulation. Long-term average water temperatures at Freeport would not change more than 0.1ºF during any month of the year. In the Delta, reductions in long-term average Delta outflow would be up to 0.3 percent, and there would be no change in X2 position for any given month of the February through June period. Moreover, Sacramento winter-run chinook salmon, Central Valley spring-run chinook salmon and fall-run and late fall-fun chinook salmon would not exhibit any substantial long-term increase in absolute early-lifestage survival, and reflect either slight increases or minor decreases in relative early-

lifestage survival. Therefore, based on these results, a conclusion of *"it is not likely to adversely affect"* is warranted. Also, impacts to Critical Habitat that includes the Sacramento River and the Delta are likely to be insignificant, and discountable. For further discussion and additional detail regarding the Proposed Project effects on water temperature, flows, early-lifestage salmon survival, Delta outflow, and X2 position, please refer to Section 3.5 and the Cumulative Report (Appendix D of the Draft EIS/EIR).

In the lower American River, the Proposed Project is not likely to adversely affect fall-run chinook salmon, steelhead or Sacramento splittail. Under the Proposed Project, there would be minor decreases in flow and increases in water temperature in some years, although these changes will be accompanied by minor flow increases and water temperature decreases in other years. Slight increases in long-term average absolute and relative early-lifestage fall-run chinook salmon survival would occur under the Proposed Project relative to the existing condition. Under the Proposed Project, potential differences in flow and water temperature are expected to have a less-than-significant impact on fall-run chinook salmon, steelhead, and Sacramento splittail. Of these species, Critical Habitat previously was designated only for steelhead, although the designation recently was withdrawn. Adverse modification of Critical Habitat is defined as "*...a direct or indirect alteration that appreciably diminishes the value of Critical Habitat for both the survival and recovery of a listed species* [50 CFR §402.02]." The phrase "*appreciably diminishes the value*" is further defined as "*...to considerably reduce the capability of designated or proposed Critical Habitat to satisfy requirements essential to both the survival and recovery of listed species* (USFWS and NMFS 1998)." The minor changes in flow and water temperature in the lower American River do not "*appreciably diminish the value*" of steelhead habitat. Nonetheless, potentially significant flow-related impacts on steelhead rearing and potential Sacramento splittail spawning habitat in the lower American River were identified for the cumulative versus ESA baseline comparison. Therefore, for the lower American River, it is concluded that the Proposed Project is not likely to adversely affect the federal candidate or listed species, and the cumulative condition is not likely to affect fall-run chinook salmon but may adversely affect but not jeopardize the continued existence of the federally threatened steelhead and Sacramento splittail.

In the upper American River, construction, operation and maintenance of the Proposed Project is not likely to adversely affect the federally threatened bald eagle. As previously discussed, construction-related increases in noise and human activity at the Proposed Project site would not be expected to disturb the bald eagle because they are rarely seen and are not known to nest in the area. Individuals foraging in the area could easily use other similar or higher quality habitats in the canyon. Most of the construction activities would occur in a previously dewatered part of the river channel that contains no roosting habitat for the bald eagle. Moreover, operation activities would likely disturb bald eagle at a level below existing conditions, because the annual installation and dismantling of seasonal facilities would not be necessary. In addition, operation and maintenance of the Proposed Project is not likely to adversely affect the federally threatened valley elderberry longhorn beetle (VELB). Backwater ponds, open water habitats, and cottonwood forest in the lower American River would not be expected to be significantly altered under the Proposed Project, relative to the existing condition; therefore, elderberry shrub and Critical Habitat for VELB would not be expected to be adversely affected.

Environmentally Superior Alternative

The environmentally superior alternative is the one that minimizes significant, or potentially significant, changes in the physical environment and meets the project objectives to the extent possible. The Proposed Project would have long-term beneficial impacts to water supply, fish and terrestrial resources, and recreation. On balance, these long-term benefits outweigh the potentially significant short-term impacts to environmental resources in the project area. The Proposed Project would be considered environmentally superior to either the No Action/No Project Alternative or Upstream Diversion Alternative.

Agency Preferred Alternative

The Proposed Project is Reclamation's preferred action. This alternative would result in closure of the bypass tunnel, as directed by the State Attorney General's office. Additionally, the Proposed Project would satisfy the terms of the MOA between Reclamation and the state regarding improved public safety access at the site. PCWA's project objectives would be satisfied through implementation of either the Proposed Project or the Upstream Diversion Alternative.

Mitigation Monitoring and Reporting Program/Environmental Commitments Plan

The Mitigation Plan will identifies measures to be incorporated into the design, construction, operation, and maintenance practices for the selected alternative. These measures are included in the summary table (**Table S-5**), and in most instances, would be anticipated to reduce impacts to levels considered less than significant. The Mitigation Plan is included as Appendix D to the Final EIS/EIR. As part of the decision-making process for the project, the lead agencies would approve and adopt the Mitigation Plan measures appropriate to the selected project alternative. Table S-5 provides a summary of impacts and mitigation measures for the project alternatives. Impact issues are summarized by resource topic, in the same order as presented in the Final EIS/EIR, and compared between alternatives. The impact significance statement assumes implementation of identified environmental protection and mitigation measures. These measures reflect those included in the Mitigation Plan. If an impact is found to be less than significant, then no mitigation measures have been proposed. Additionally, if there are no feasible measures or alternatives, or if the project alternatives do not have a considerable contribution to the potentially significant cumulative impacts, then no mitigation is required or proposed.

Table S-5

Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures [a]
WATER SUPPLY AND HYDROLOGY (Section 3.4)		
Facilities-Related Impacts		
Reliability of water supply facilities.		
No Action/No Project Alternative. Operations would be subject to times when high flows prevent spring installation, or flood flows result in damage to the facilities such that they become inoperable. Due to the extended operation period, these events would be expected to occur more frequently than under the existing condition.	Potentially significant and unavoidable.	No feasible mitigation available.
Action Alternatives. The year-round facilities would be placed above the 100-year flood level in the canyon and would be protected from high flood flows substantially reducing or eliminating the potential for reliability issues as compared to the existing or No Action/No Project Alternative conditions.	Significant beneficial impact.	None proposed.
Ability to meet PCWA water supply demands.		
No Action/No Project Alternative. PCWA currently has need of obtaining surplus water supplies from neighboring water districts as the existing condition seasonal pump station operations do not meet demand. PCWA's ability to obtain surplus water from other districts would vary from year-to-year and is not considered a reliable source. The extended operation of the seasonal pump station would potentially satisfy increased and projected demands until about 2008. However, due to capacity and operational period limitations, the seasonal pump station would not meet overall long-term objectives of providing a reliable, year-round water supply to satisfy current back-up supply needs and future demands associated with planned/approved development.	Short-term beneficial/long-term potentially significant.	No feasible mitigation available.
Action Alternatives. Increasing capacity and operational period for the American River pump station would supplement PCWA's Drum-Spaulding Project water supply sufficiently to meet water demands through about 2015, as compared to only 2008 under the No Action/No Project Alternative.	Beneficial impact.	None proposed.
Groundwater overdraft.		
No Action/No Project Alternative. PCWA likely would implement stringent water conservation policies that would reduce the amount of surface water provided to the agricultural and rural farms/ranchettes in western Placer County leading to increased use of groundwater and/or discontinued/changed farming operations. Although PCWA would continue to work toward development of alternative water supply options; the timing and the eventual availability of such supplies remains speculative. Current groundwater overdraft conditions would be exacerbated.	Potentially significant and unavoidable.	No feasible mitigation readily available.

[a] Construction-related environmental protection measures would be included in the project contract specifications prior to contractor bidding.

Table S-5 (Continued)

Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
WATER SUPPLY AND HYDROLOGY (Section 3.4) (Continued)		
Groundwater overdraft (continued).		
Action Alternatives. The increased water supply from the year-round pump station would meet raw and treated water customer demands until approximately 2015; agricultural and rural users would not need to withdraw additional groundwater supply.	Less than significant.	None proposed.
Channel instability from backwater effects.		
No Action/No Project Alternative. The diversion/intake would be the same as the existing configuration and would not lead to a backwater effect or related effects upon channel stability.	Less than significant.	None proposed.
Action Alternatives. Under existing conditions, Tamaroo Bar rapids become inundated when river flows reach 6,000 cfs. Below 6,000 cfs, the backwater effect would increase water surface elevation by a minor amount; the effect would not result in channel stability effects at the Tamaroo Bar rapids, relative to the existing condition. Because the existing dewatered portion of the channel will be deepened and widened at the cofferdam, at higher flows, the backwater may be less than it is now. As part of final project design/pre-construction, additional site surveys and hydraulic modeling would be conducted to evaluate potential backwater effects. Preliminary design criteria is to not substantially alter conditions above Tamaroo Bar Rapids.	Less than significant.	None proposed.
Cumulative Facilities-Related Impacts		
The Action Alternatives would contribute to an improvement of water supply reliability that potentially could be further developed with future expansion of the facility for PCWA and GDPUD. Future expansion would require additional environmental review, resource agency consultations, and regulatory permitting.	Potentially beneficial.	
DIVERSION-RELATED IMPACTS		
No Action/No Project Alternative Compared to Existing Condition. The increased pump station diversion under the No Action/No Project Alternative would be less than evaluated for the Action Alternatives (see below). Based on the evaluation of modeling performed for the Action Alternatives, it is expected that the No Action/No Project Alternative would not result in significant water supply effects on American River water rights holders, SWP customers, or CVP Settlement and Exchange contractors. Some minor and infrequent reduction of CVP water service contractor delivery allocations may occur. Use of water by PCWA in accordance with its water rights in its place of use has a priority to the CVP's rights at Folsom Reservoir to the extent that such CVP rights are used for export.	American River water rights holders, SWP customers, CVP Settlement and Exchange Contractors: Less than significant. CVP Water Service Contractors: Potentially significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
WATER SUPPLY AND HYDROLOGY (Continued)		
Water supply availability to American River water rights holders.		
Action Alternatives Compared to the Existing Condition. Water supply deliveries/availability to American River water rights holders would be the same as under the existing condition.	Less than significant.	None proposed.
Action Alternatives Compared to No Action/No Project (Future). Water supply deliveries/availability to American River water rights holders would be the same as under the No Action/No Project Alternative.	Less than significant.	None proposed.
Cumulative Condition. Water supply deliveries/availability to American River water rights holders would be the same as under the existing condition.	Less than significant.	
Delivery allocations to SWP customers.		
Action Alternatives Compared to the Existing Condition. Water supply delivery allocations to SWP customers would be the same as under the existing condition.	Less than significant.	None proposed.
Action Alternatives Compared to No Action/No Project (Future). Water supply delivery allocations to SWP customers would be the same as under the No Action/No Project Alternative.	Less than significant.	None proposed.
Cumulative Condition. Feather River Service Area customers would not experience any reduction in allocations, compared to the existing condition. Delta Service Area customers would be subject to frequent (42 out of 70 years simulated) and substantial (5 to 45 percent) allocation reductions.	Feather River Service Area: Less than significant. Delta Service Area: Significant impact.	
Action Alternatives' Incremental Contribution to the Cumulative Condition. The delivery allocation to Delta Service Area SWP customers would remain unchanged between cumulative (future with the project) and future base (future with project diversions held at 8,500 AFA).	Delta Service Area: Less than significant.	Delta Service Area: None proposed.
Delivery allocations to CVP contractors.		
Action Alternatives Compared to the Existing Condition. Water supply delivery allocations to CVP Settlement and Exchange Contractors would be the same as under the existing condition. Water supply delivery allocations to CVP water service contractors would experience small and infrequent reductions in percent delivery allocations. Although reduction in allocation percent would be only 5 percent in less than at most 2 years over the 70-year simulation, any reduction would be considered significant. Use of water by PCWA in accordance with its water rights in its place of use has a priority to the CVP's rights at Folsom Reservoir to the extent that such CVP rights are used for export.	CVP Settlement and Exchange Contractors: Less than significant. CVP Water Service Contractors: Potentially significant and unavoidable.	CVP Settlement and Exchange Contractors: None proposed. CVP Water Service Contractors: None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
WATER SUPPLY AND HYDROLOGY (Section 3.4) (Continued)		
Delivery allocations to CVP contractors (continued).		
Action Alternatives Compared to No Action/No Project Alternative (Future). Water supply delivery allocations to CVP Settlement and Exchange contractors would be the same as under the No Action/No Project Alternative. Water supply delivery allocations to CVP water service contractors would experience small and infrequent reductions in percent delivery allocations. Although reduction in allocation percent would be minor, any reduction would be considered significant. Use of water by PCWA in accordance with its water rights in its place of use has a priority to the CVP's rights at Folsom Reservoir to the extent that such CVP rights are used for export.	CVP Settlement and Exchange Contractors: Less than significant CVP Water Service Contractors: Potentially significant and unavoidable.	CVP Settlement and Exchange Contractors: None proposed. CVP Water Service Contractors: None proposed.
Cumulative Condition. Water supply delivery allocations to CVP Settlement and Exchange contractors would be the same as under the existing condition. Water supply delivery allocations to CVP water service contractors would be reduced by 5 to 25 percent in a substantial number of years.	CVP Settlement and Exchange Contractors: Less than significant CVP Water Service Contractors: Potentially significant and unavoidable.	
Action Alternatives' Incremental Contribution to the Cumulative Condition. Water supply delivery allocations to CVP water service contractors would experience small and infrequent reductions in percent delivery allocations under the future condition with the project versus the future with project diversions held at current levels. Although reduction in allocation percent would be minor, any reduction would be considered significant. Use of water by PCWA in accordance with its water rights in its place of use has a priority to the CVP's rights at Folsom Reservoir to the extent that such CVP rights are used for export.	CVP Water Service Contractors Potentially significant and unavoidable.	CVP Water Service Contractors: None proposed.
FISH RESOURCES AND AQUATIC HABITAT (Section 3.5)		
FACILITIES-RELATED IMPACTS		
Construction effects on aquatic resources of the North Fork American River.		
No Action/No Project Alternative. Installation and removal of the seasonal pump station would not differ in a way that would affect aquatic resources of the North Fork American River.	Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
FISH RESOURCES AND AQUATIC HABITAT (Section 3.5) (Continued)		
Construction effects on aquatic resources of the North Fork American River (continued).		
Proposed Project. In-river construction would have the potential to disturb aquatic habitat areas and fish resources not affected by existing or No Action/No Project Alternative conditions. Construction-related activities would involve substantially more earthwork than under existing, No Action/No Project Alternative, and Upstream Diversion Alternative conditions. Implementation of BMPs identified in the Water Quality section would prevent degradation of aquatic habitat in the project area.	Less than significant.	3.3-1: Removal of Construction Litter and Debris 3.3-2: Construction-related Water Quality Protection Measures
Upstream Diversion Alternative. With the exception of construction associated with river channel restoration and river access development, the Upstream Diversion Alternative would have the same construction-related consequences as the Proposed Project. Water Quality Environmental Protection and Mitigation Measures would be included.	Less than significant.	3.3-1: Removal of Construction Litter and Debris 3.3-2: Construction-related Water Quality Protection Measures
Fish impingement and entrainment at the point of diversion.		
No Action/No Project Alternative. Reclamation, under coordination and consultation with CDFG, would determine the method for temporary fish screening methods on a regular basis (every five years) as part of renewing their Streambed Alteration Agreement. Compliance with these terms and conditions would protect fish resources at the site.	Less than significant.	None proposed.
Action Alternatives. The Action Alternatives would include installation of a CDFG-approved fish screen.	Beneficial impact.	3.1-1: Prevent Fish Entrainment and Impingement at the Water Supply Intake/Point of Diversion
Alteration of habitat through creation of backwater on the North Fork American River upstream of the intake structure.		
No Action/No Project Alternative. Upstream aquatic habitat would remain unchanged compared to the existing condition. Under the existing condition, fish passage is restricted by the bypass tunnel.	Less than significant.	None proposed.
Proposed Project. Aquatic habitat conditions at the project site would be greatly improved due to restoration of the river channel as compared to the existing, No Action/No Project Alternative and Upstream Diversion Alternative conditions. Backwater created during flow conditions below 6,000 cfs could alter habitat conditions somewhat, but not to the extent that native fish habitat would be adversely modified.	Beneficial impact.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
FISH RESOURCES AND AQUATIC HABITAT (Section 3.5) (Continued)		
Alteration of habitat through creation of backwater on the North Fork American River upstream of the intake structure (continued)		
Upstream Diversion Alternative. Backwater created during flow conditions below 6,000 cfs would not be expected to adversely affect fish habitat as compared to the existing and No Action/No Project Alternative conditions. This alternative would not provide restoration of the river channel so the benefit of overall improved fish habitat and aquatic resource conditions would not be present as under the Proposed Project.	Less than significant.	None proposed.
Fish passage through the project area.		
No Action/No Project Alternative. No additional structures or other features would be developed that might alter fish passage conditions as compared to the existing condition.	Less than significant.	None proposed.
Proposed Project. Restoration of the river channel would improve fish passage conditions over the existing, No Action/No Project Alternative, and Upstream Diversion Alternative conditions by removal of the bypass tunnel. Gradient control for the water supply diversion would include design considerations for effective fish passage.	Beneficial impact.	None proposed.
Upstream Diversion Alternative. The bypass tunnel would remain open as under the existing and No Action/No Project Alternative conditions.	Less than significant.	None proposed.
Auburn Ravine salmonids.		
No Action/No Project Alternative. The existing diversion pattern from the North Fork American River to Auburn Ravine will not change, thereby avoiding any flow-related impacts to the Auburn Ravine aquatic ecosystem. No Action/No Project Alternative water deliveries to Lincoln WWTRF do not significantly exacerbate the potential impact relating to increases in flow in Auburn Ravine identified by the City of Lincoln (1999) WWTRF Draft EIR.	Less than significant.	3.1-2: Avoid Impacts Upon Auburn Ravine Fish, Aquatic and Terrestrial (Riparian) Resources
Action Alternatives. The existing diversion pattern from the North Fork American River to Auburn Ravine will not change, thereby avoiding any flow-related impacts to the Auburn Ravine aquatic ecosystem. Action Alternatives' water deliveries to Lincoln WWTRF do not significantly exacerbate the potential impact relating to increases in flow in Auburn Ravine identified by the City of Lincoln (1999) WWTRF Draft EIR.	Less than significant.	3.1-2: Avoid Impacts Upon Auburn Ravine Fish, Aquatic and Terrestrial (Riparian) Resources
Public river access parking areas.		
Proposed Project. Increased public use of the project area would have the potential to introduce pollutants or contaminants associated with vehicular and human activities from the parking areas and river access. Design of the parking lots, trails and roadways would incorporate appropriate drainage improvements to minimize potential for water quality impacts. Sanitation facilities (restrooms and trash containers) also would serve to minimize water quality degradation.	Less than significant.	3.3-4: Minimize Water Quality Impacts From Increased Public Access

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
FISH RESOURCES AND AQUATIC HABITAT (Section 3.5) (Continued)		
Cumulative Facilities-Related Impacts		
All future planned actions or projects within the river channel would be responsible for implementing water quality protection measures according to regulatory and planning agency requirements. No significant cumulative impact upon water quality affecting fish resources would be anticipated.	Less than significant.	
DIVERSION-RELATED IMPACTS		
No Action/No Project Alternative Compared to Existing Condition. The increased pump station diversion under the No Action/No Project Alternative would be less than evaluated for the Action Alternatives (see below). Based on the evaluation of modeling performed for the Action Alternatives, it is expected that the No Action/No Project Alternative would not result in significant effects on fish habitat or aquatic resources, nor would it result in a significant or considerable contribution to the cumulative condition.	Less than significant.	None proposed.
North and Middle forks of the American River		
Action Alternatives Compared to the Existing Condition. *Upstream of Diversion* - Hydrologic modeling indicates that monthly mean flows above the diversion would be essentially equivalent to the existing condition for most of the time. Under low-flow conditions, river flows would differ only slightly due to changes in MFP operations with a long-term increase compared to the existing condition. Changes in flow would not be expected to result in measurable changes in water temperature upstream of the project site relative to the existing condition. *Downstream of Diversion* - Monthly mean flows downstream of the project site would be reduced in summer months when water supply diversions are highest; however, during low-flow months, river flows would be higher than under the existing condition. Changes in water temperature would not be expected to be measurable. Additionally, restoration of the river channel provides an overall improvement of fish habitat and aquatic resource conditions not provided under the existing, No Action/No Project Alternative, or Upstream Diversion Alternative conditions.	Less than significant.	None proposed.
Action Alternatives Compared to No Action/No Project Alternative (Future). *Upstream of Diversion* - Average long-term monthly mean flows in the upper American River above the diversion would be essentially equivalent all months of the year, compared to the No Action/No Project Alternative. Changes in average long-term monthly mean flows would range from decreases and increases of up to 0.6 percent. The relatively minor changes in average long-term monthly mean flows would not be expected to affect fish of the upper American River. The minor changes in flow would not be expected to result in measurable changes in river water temperature.	Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
FISH RESOURCES AND AQUATIC HABITAT (Section 3.5) (Continued)		
North and Middle forks of the American River (continued).		
Action Alternatives Compared to No Action/No Project Alternative (Future) (Continued). *Downstream of Diversion* - Average long-term monthly mean flows downstream of the project diversion would be reduced in all but one month of the year, with decreases ranging from less than one percent to 5.8 percent. These minor changes in flow would not be expected to adversely impact fish resources in the river below the site. Under the Proposed Project, river restoration would provide an overall benefit to these resources. The relatively minor changes in river flow would not be expected to result in measurable changes in water temperature.	Less than significant.	None proposed.
Cumulative Condition. *Upstream of Diversion* - Lower monthly mean flows would occur during peak diversion season (April through September) with the percentage decrease ranging from 0.2 to 3.7 percent. The changes in monthly mean flows would be considered minor and would not affect fish resources, relative to the existing condition. The relatively minor changes in river flow would not be expected to result in measurable changes in water temperature. *Downstream of Diversion* - Long-term average monthly mean flows downstream of the project diversion would be reduced in all but two months of the year, with decreases ranging from less than one percent to 10 percent. These minor changes in flow would not be expected to adversely impact fish resources in the river below the site. Under the Proposed Project, river restoration would provide an overall benefit to these resources. The relatively minor changes in river flow would not be expected to result in measurable changes in water temperature.	Less than significant.	
Folsom Reservoir warmwater fisheries.		
Action Alternatives Compared to the Existing Condition. Additional diversions from the North Fork American River and associated changes in CVP operations would result in almost no difference in the long-term average end-of-month water surface elevation in Folsom Reservoir during the critical spawning and rearing period (i.e., March through September) as compared to the existing condition. Related, the long-term reduction of reservoir littoral habitat would be minor and infrequent (two percent or less) and would not reduce long-term average initial year-class strength of the warmwater fish populations. The potential for reservoir elevations to decrease by more than nine feet during the primary fish-spawning months (March through July) would not increase during any month of the spawning period when compared to the existing condition.	Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
FISH RESOURCES AND AQUATIC HABITAT (Section 3.5) (Continued)		
Folsom Reservoir warmwater fisheries (continued).		
Action Alternatives Compared to No Action/No Project (Future). The long-term average end-of-month water surface elevation during March through September (spawning and initial rearing period) would be the same in all months but July, when modeling indicates a reduction of up to one foot. In most months, the elevation would increase or remain essentially the same as under the No Action/No Project Alternative. Differences in reservoir elevation would potentially result in a range of increased littoral habitat by up to 1.4 percent to a decrease of up to 3.1 percent, relative to the No Action/No Project Alternative. These changes would not be of sufficient magnitude to substantially reduce long-term average initial year-class strength. The frequency of nest-dewatering events would increase only slightly (up to two more occurrences) than under the No Action/No Project Alternative.	Less than significant.	None proposed.
Cumulative Condition. Long-term average end-of-month water surface elevations would be reduced up to eight feet during March through September; these reductions could lead to reductions in the long-term average amount of available littoral habitat of between 5 and 31 percent. These reductions in habitat availability could lead to increased predation on young-of-the-year warmwater fish, potentially reducing the long-term initial year-class strength of the population. The increased frequency of nest-dewatering events would be significant, relative to the existing condition.	Potentially significant.	
Action Alternatives' Incremental Contribution to the Cumulative Condition. A comparison of the future with the project (cumulative) versus the future with project diversions held at existing levels (8,500 AFA) indicates almost no difference in the long-term average end-of-month water surface elevation during March through September. Seasonal reductions in littoral habitat availability also would be expected to be minor and infrequent by comparison. The frequency with which potential nest-dewatering events would occur would not change significantly. The incremental contribution to the cumulative condition would therefore not be considerable.	Less than significant.	None proposed.
Folsom Reservoir's coldwater fisheries.		
Action Alternatives Compared to the Existing Condition. Minor changes in Folsom Reservoir end-of-month storage during some years of the April through November period would occur due to changes in CVP operations associated with increased North Fork American River diversions, as compared to the existing condition. For any given month, a less than one percent reduction in long-term average end-of-month storage would be the largest change from the existing condition. Such reductions in reservoir storage would not be expected to adversely affect the reservoir's coldwater fish because coldwater habitat would remain available within the reservoir during all months of all years; physical habitat availability is not believed to be among the primary factors limiting coldwater fish populations; and anticipated seasonal reductions in storage would not be expected to adversely affect the primary prey species utilized by coldwater fish.	Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
FISH RESOURCES AND AQUATIC HABITAT (Section 3.5) (Continued)		
Folsom Reservoir's coldwater fisheries (continued).		
Action Alternatives Compared to No Action/No Project Alternative (Future). Minor reductions in Folsom Reservoir end-of-month storage would occur, relative to the No Action/No Project Alternative. The largest difference in any given month would be up to 4,000 AF, or less than one percent change. Anticipated reductions in reservoir storage would not be expected to adversely affect the reservoir's coldwater fish because coldwater habitat would remain available within the reservoir during all months of all years and anticipated seasonal reductions in storage would not be expected to adversely affect the primary prey species utilized by coldwater fish.	Less than significant.	None proposed.
Cumulative Condition. Decreases in long-term average reservoir storage would not be substantial compared to the existing condition. These changes would not adversely affect coldwater fisheries because coldwater habitat would remain available within the reservoir during all months of all years and anticipated seasonal reductions in storage would not be expected to affect the primary prey species utilized by coldwater fish.	Less than significant.	
Nimbus Fish Hatchery.		
Action Alternatives Compared to the Existing Condition. CVP operations of Folsom Reservoir and Dam associated with the Action Alternatives would have very little effect on water temperatures entering the Nimbus Fish Hatchery from Lake Natoma during the May through September critical period for hatchery operations, compared to the existing condition.	Less than significant.	None proposed.
Action Alternatives Compared to No Action/No Project Alternative (Future). CVP operations of Folsom Reservoir and Dam associated with the Action Alternatives would have very little effect on water temperatures entering the Nimbus Fish Hatchery from Lake Natoma during the May through September critical period for hatchery operations, compared to the No Action/No Project Alternative.	Less than significant.	None proposed.
Cumulative Condition. CVP operations of Folsom Reservoir and Dam associated with the cumulative condition would have very little effect on water temperatures entering the Nimbus Fish Hatchery from Lake Natoma during the May through September critical period for hatchery operations, compared to the existing condition.	Less than significant.	
Lower American River Fisheries Impacts		
Fall-run chinook salmon and steelhead in the lower American River.		
Action Alternatives Compared to the Existing Condition. Minimal potential differences in lower American River flows and water temperatures, relative to the existing condition, would not be expected to adversely affect fall-run chinook salmon and steelhead immigration, spawning and incubation, or juvenile rearing and emigration.	Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
FISH RESOURCES AND AQUATIC HABITAT (Section 3.5) (Continued)		
Fall-run chinook salmon and steelhead in the lower American River (continued).		
Action Alternatives Compared to No Action/No Project Alternative (Future). Minimal potential differences in lower American River flows and water temperatures, relative to the No Action/No Project Alternative, would not be expected to adversely affect fall-run chinook salmon and steelhead immigration, spawning and incubation, or juvenile rearing and emigration.	Less than significant.	None proposed.
Cumulative Condition. Flow reductions under the cumulative condition may adversely affect long-term juvenile fall-run chinook salmon rearing habitat availability. Temperature increases during March through June represent a potentially significant impact to juvenile fall-run chinook salmon rearing. The cumulative condition also would result in periods of reduced flows (March through June) affecting juvenile steelhead rearing success. Temperature increases during March through June represent a potentially significant impact to juvenile steelhead rearing.	Juvenile fall-run chinook salmon rearing habitat availability: Potentially significant. Juvenile steelhead rearing: Potentially significant.	
Action Alternatives' Incremental Contribution to the Cumulative Condition. Flows below Nimbus Dam and at Watt Avenue would be within 2 percent of the future base condition, or essentially equivalent in most months. Modeling results indicate there would be additional years in which flows below Nimbus Dam would be lower than future base conditions by more than 10 percent. Further examination of these data, however, indicates that in seven of the eight years, such differences are due to time-step functions in PROSIM; real-time operations and adjustments would result in a less substantial decrease in storage. The Action Alternatives' incremental contribution to the cumulative condition (reduced flows and increased temperatures) would therefore not be substantial.	Juvenile fall-run chinook salmon rearing habitat availability: Less than significant. Juvenile steelhead rearing habitat availability: Less than significant.	None proposed.
Splittail in the lower American River.		
Action Alternatives Compared to the Existing Condition. The long-term average flow at Watt Avenue during February through May would range between 0.5 to two percent less than under the existing condition. The long-term average acreage of usable riparian vegetation inundated during the February to May spawning period would not change substantially relative to the existing condition. Flow changes would have little, if any, effect on the availability of in-channel spawning habitat availability from the mouth up to River Mile (RM) 5. Long-term population trends of splittail would not be expected to be adversely affected, compared to the existing condition. No substantial change in the frequency of water temperature exceeding the reported preferred range for splittail spawning would occur, relative to the existing condition.	Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
FISH RESOURCES AND AQUATIC HABITAT (Section 3.5) (Continued)		
Splittail in the lower American River (continued).		
Action Alternatives Compared to No Action/No Project Alternative (Future). The long-term average flow at Watt Avenue during February through May would range between 0.3 to 0.9 percent less than under the No Action/No Project Alternative. The long-term average acreage of usable riparian vegetation inundated during the February to May spawning period would not change for any month relative to the No Action/No Project Alternative. Flow changes would have little, if any, effect on the availability of in-channel spawning habitat availability from the mouth up to RM 5. Long-term population trends of splittail would not be expected to be adversely affected, compared to the No Action/No Project Alternative. No substantial change in the frequency of water temperature exceeding the reported preferred range for splittail spawning would occur, relative to the No Action/No Project Alternative.	Less than significant.	None proposed.
Cumulative Condition. Under the cumulative condition, the long-term average flow at Watt Avenue (February to May) would be 1.6 to 6.3 percent less than the existing condition. The estimated reduction of useable riparian habitat for splittail would be considered significant compared to the existing condition.	Potentially significant.	
Action Alternatives' Incremental Contribution to the Cumulative Condition. Long-term average usable inundated riparian habitat would not change during February through May under the cumulative condition (future with an Action Alternative) compared to the future base (future with project diversions held at 8,500 AFA). Minor and infrequent decreases in the amount of habitat would occur in these months, but would not represent a significant contribution to the cumulative condition.	Less than significant.	None proposed.
American shad in the lower American River.		
Action Alternatives Compared to the Existing Condition. Average river flows at the American River mouth would be reduced by about one percent in May and June, relative to the existing condition. While flow reductions could potentially reduce the total number of shad attracted into the river, shad are known to spawn opportunistically where suitable conditions are found and overall production within the Sacramento River system would not be expected to be adversely affected. Modeling results also indicate that the probability of occurrence of flows required to maintain the shad sport fishery (3,000 cfs) would not differ, relative to the existing condition. Mean monthly water temperatures in May and June would be similar to the existing condition, with the exception of one year (out of 70) where temperature may be outside of the reported preferred range (60°F to 70°F).	Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
FISH RESOURCES AND AQUATIC HABITAT (Section 3.5) (Continued)		
American shad in the lower American River (continued).		
Action Alternatives Compared to No Action/No Project Alternative (Future). Average river flows at the American River mouth would be reduced by up to 0.3 percent in May and increased by up to 0.1 percent in June, relative to the No Action/No Project Alternative. Such flow changes would be unlikely to affect the total number of shad attracted into the river, particularly because shad are known to spawn opportunistically where suitable conditions are found and overall production within the Sacramento River system would not be expected to be adversely affected. Modeling results also indicate that the probability of occurrence of flows required to maintain the shad sport fishery (3,000 cfs) would not differ, relative to the No Action/No Project Alternative. Mean monthly water temperatures in May and June would be similar to the No Action/No Project Alternative, with the exception of one year (out of 70) where temperature may be outside of the reported preferred range (60°F to 70°F).	Less than significant.	None proposed.
Cumulative Condition. Average river flows at the American River mouth would be reduced by about seven percent in May and 3.4 percent in June, relative to the existing condition. Such flow changes would potentially reduce the total number of shad attracted into the river; however, because shad are known to spawn opportunistically where suitable conditions are found, overall production of shad within the Sacramento River would not be expected to be adversely affected. Modeling results also indicate that the probability of occurrence of flows required to maintain the shad sport fishery (3,000 cfs) would meet this threshold in one less year, relative to the existing condition. Mean monthly water temperatures in May and June would be similar to the existing condition, with the exception of one year (out of 70) for each month where temperature may be outside of the reported preferred range (60º to 70º).	Less than significant.	
Striped bass in the lower American River.		
Action Alternatives Compared to the Existing Condition. Striped bass juvenile rearing would not be affected by changes in river flows, compared to the existing condition. River flows at the mouth to maintain the striped bass sport fishery (1,500 cfs) would be met or exceeded in most years during both May and June; the strength of the striped bass fishery would not be expected to be adversely affected by infrequent increased reductions of May or June monthly mean flows that would occur relative to the existing condition. The frequency for suitable temperature for juvenile striped bass rearing in the river would remain essentially unchanged.	Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
FISH RESOURCES AND AQUATIC HABITAT (Section 3.5) (Continued)		
Striped bass in the lower American River (continued).		
Action Alternatives Compared to No Action/No Project Alternative (Future). Striped bass juvenile rearing would not be affected by changes in river flows, compared to the No Action/No Project Alternative. River flows at the mouth to maintain the striped bass sport fishery (1,500 cfs) would be met or exceeded in most years during both May and June; the strength of the striped bass fishery would not be expected to be adversely affected by infrequent increased reductions of May or June monthly mean flows that would occur relative to the No Action/No Project Alternative. The frequency for suitable temperature for juvenile striped bass rearing in the river would be within the reported preferred range for juvenile rearing two less years in both May and June below Nimbus Dam and one additional year in May at the mouth, relative to the No Action/No Project Alternative.	Less than significant.	None proposed.
Cumulative Condition. Striped bass juvenile rearing would not be affected by changes in river flows, compared to the existing condition. River flows at the mouth to maintain the striped bass sport fishery (1,500 cfs) would be met or exceeded in most years during both May and June; the strength of the striped bass fishery would not be expected to be adversely affected by infrequent increased reductions of May or June monthly mean flows that would occur relative to the existing condition. The frequency for suitable temperature for juvenile striped bass rearing in the river would be within the reported preferred range for juvenile rearing one less year in May but one additional year in June below Nimbus Dam and two additional years in May at the mouth, relative to the existing condition.	Less than significant.	
Shasta and Trinity reservoir warmwater fisheries.		
Action Alternatives Compared to the Existing Condition. *Shasta Reservoir* - End-of-month elevation at Shasta Reservoir would be essentially equivalent to or greater than the existing condition in most months (March through September); reductions in average end-of-month elevation of one foot or more could occur four percent of the time during the March through September period. Differences in the long-term average amount of littoral habitat potentially available to fish for spawning and rearing would be infrequent and not of sufficient magnitude to substantially reduce long-term average initial year-class strength of warmwater fish populations. The potential for nest-dewatering events would not change substantially, relative to the existing condition.	Shasta Reservoir: Less than significant.	None proposed.
Trinity Reservoir - End-of-month elevation at Trinity Reservoir would be essentially equivalent to or greater than the existing condition in most months (March through September). Differences in the long-term average amount of littoral habitat potentially available to fish for spawning and rearing would be infrequent and not of sufficient magnitude to substantially reduce long-term average initial year-class strength of warmwater fish populations. The potential for nest-dewatering events would not change substantially, relative to the existing condition.	Trinity Reservoir: Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
FISH RESOURCES AND AQUATIC HABITAT (Section 3.5) (Continued)		
Shasta and Trinity reservoir warmwater fisheries (continued).		
Action Alternatives Compared to No Action/No Project Alternative (Future). *Shasta Reservoir* - End-of-month elevation at Shasta Reservoir would be essentially unchanged or greater than No the Action/No Project Alternative in most months (March through September); reductions in average end-of-month elevation of one foot or more could occur 11 percent of the time during the March through September period. Differences in the long-term average amount of littoral habitat potentially available to fish for spawning and rearing would be infrequent and not of sufficient magnitude to substantially reduce long-term average initial year-class strength of warmwater fish populations. The potential for nest-dewatering events would not change substantially, relative to the No Action/No Project Alternative. *Trinity Reservoir* - End-of-month elevation at Trinity Reservoir would be essentially equivalent to or greater than the existing condition in most months (March through September). Reductions in the long-term average amount of littoral habitat potentially available to fish for spawning and rearing would be infrequent and not of sufficient magnitude to substantially reduce long-term average initial year-class strength of warmwater fish populations. The potential for nest-dewatering events would not change substantially, relative to the No Action/No Project Alternative.	Shasta Reservoir: Less than significant. Trinity Reservoir: Less than significant.	None proposed.
Cumulative Condition. *Shasta Reservoir* - In over half of the years simulated, water surface elevation would be reduced by more than one foot compared to the existing condition (March through September). The long-term average availability of littoral habitat would be reduced to an extent that would potentially affect long-term average initial year-class strength of the fish populations. The relative frequency of potential nest dewatering events under cumulative compared to the existing condition would not change substantially. *Trinity Reservoir* - The long-term average end-of-month water surface elevation would not change substantially from the existing condition (March through September). Reductions in the long-term average availability of littoral habitat would not be reduced to an extent that would be anticipated to affect long-term average initial year-class strength of warmwater fish populations. Modeling results indicate that the potential for nest dewatering events would be less under the cumulative condition compared to the existing condition.	Shasta Reservoir: Potentially significant. Nest dewatering: Less than significant. Trinity Reservoir: Less than significant.	
Action Alternatives' Incremental Contribution to the Cumulative Condition. *Shasta Reservoir* - The end-of-month water surface elevation in Shasta Reservoir would be essentially equivalent under future with project (cumulative condition) and future base (future conditions with project diversions held at 8,500 AFA) in most months of the analysis. Minor and infrequent reductions in the availability of littoral habitat would not result in reductions of the long-term average initial year-class strength of warmwater fish populations. These results indicate that the Action Alternatives' contribution to cumulative conditions would not be significant.	Shasta Reservoir: Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
FISH RESOURCES AND AQUATIC HABITAT (Section 3.5) (Continued)		
Shasta and Trinity reservoir coldwater fisheries.		
Action Alternatives Compared to the Existing Condition. *Shasta Reservoir* - End-of-month storage would be essentially equivalent to the existing condition for most months (April through November); the largest individual storage reduction for any given month during the April through November period would be only 4.6 percent, with reductions of greater than 3 percent occurring less than approximately 1.5 percent of the time. Such reductions in reservoir storage would not be expected to adversely affect the reservoir's coldwater fish because: (1) coldwater habitat would remain available within the reservoir during all months of all years; (2) physical habitat availability is not believed to be among the primary factors limiting coldwater fish populations; and (3) anticipated seasonal reductions in storage would not be expected to adversely affect the primary prey species utilized by coldwater fish.	Shasta Reservoir: Less than significant.	None proposed.
Trinity Reservoir - End-of-month storage would be essentially unchanged compared to the existing condition in most months (April through November); reductions in storage would be less than 1.4 percent for any individual month of the period evaluated. Such reductions in reservoir storage would not be expected to adversely affect the reservoir's coldwater fish because: (1) coldwater habitat would remain available within the reservoir during all months of all years; (2) physical habitat availability is not believed to be among the primary factors limiting coldwater fish populations; and (3) anticipated seasonal reductions in storage would not be expected to adversely affect the primary prey species utilized by coldwater fish.	Trinity Reservoir: Less than significant.	None proposed.
Action Alternatives Compared to No Action/No Project Alternative (Future). *Shasta Reservoir* - End-of-month storage would be essentially equivalent to or greater than the No Action/No Project Alternative for most months (April through November); the largest individual storage reduction for any given month during the April through November period would be only 3 percent and would occur infrequently. Such reductions in reservoir storage would not be expected to adversely affect the reservoir's coldwater fish because coldwater habitat would remain available within the reservoir during all months of all years and anticipated seasonal reductions in storage would not be expected to adversely affect the primary prey species utilized by coldwater fish.	Shasta Reservoir: Less than significant.	None proposed.
Trinity Reservoir - End-of-month storage would be essentially unchanged or decrease only slightly (0.1 percent) compared to the No Action/No Project Alternative in most months (April through November). These reductions in reservoir storage would not be expected to adversely affect the reservoir's coldwater fish because coldwater habitat would remain available within the reservoir during all months of all years and anticipated seasonal reductions in storage would not be expected to adversely affect the primary prey species utilized by coldwater fish.	Trinity Reservoir: Less than significant.	

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
FISH RESOURCES AND AQUATIC HABITAT (Section 3.5) (Continued)		
Shasta and Trinity reservoir coldwater fisheries (continued).		
Cumulative Condition. *Shasta Reservoir* - End-of-month storage (April through November) would be reduced by 10 percent or more up to 26 percent of the time simulated under the cumulative condition compared to the existing condition. Such reductions in reservoir storage would not be expected to adversely affect the reservoir's coldwater fish because coldwater habitat would remain available within the reservoir during all months of all years and anticipated seasonal reductions in storage would not be expected to adversely affect the primary prey species utilized by coldwater fish. *Trinity Reservoir* – End-of-month storage would be essentially unchanged or decrease by no more than about five percent compared to the existing condition in most months (April through November). These reductions in reservoir storage would not be expected to adversely affect the reservoir's coldwater fish because coldwater habitat would remain available within the reservoir during all months of all years and anticipated seasonal reductions in storage would not be expected to adversely affect the primary prey species utilized by coldwater fish.	Shasta Reservoir: Less than significant. Trinity Reservoir: Less than significant.	
Sacramento River Fisheries Impacts		
Upper Sacramento River.		
Action Alternatives Compared to the Existing Condition. Monthly mean flows below Keswick Dam in the upper Sacramento River would be essentially equivalent to the existing condition in most months. Modeling results indicate that monthly mean flows below Keswick Dam would not be reduced below the NMFS Biological Opinion (1993, as revised in 1995) 3,250 cfs threshold for the protection of winter-run chinook salmon rearing and downstream passage in any month of the October through March period. Long-term average temperatures for the upper Sacramento River (Keswick Dam, Bend Bridge) would not change from the existing condition in any month of the year; in most months, the monthly mean temperatures would be essentially equivalent to or less than the existing condition. There would be only two additional months when water temperatures could exceed 56°F or 60°F at either Keswick Dam or Bend Bridge, relative to the existing condition. There would not be any substantial decrease in annual early-lifestage survival of fall-run, late fall-run, winter-run, or spring-run chinook salmon in any individual year relative to the existing condition.	Flow and temperature-related impacts: Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
FISH RESOURCES AND AQUATIC HABITAT (Section 3.5) (Continued)		
Upper Sacramento River (continued).		
Action Alternatives Compared to No Action/No Project Alternative (Future). Monthly mean flows below Keswick Dam in the upper Sacramento River would be essentially equivalent to No Action/No Project Alternative in most months. Modeling results indicate that monthly mean flows below Keswick Dam would not be reduced below the NMFS Biological Opinion 3,250 cfs threshold for the protection of winter-run chinook salmon rearing and downstream passage in any month of the October through March period. Long-term average temperatures for the upper Sacramento River (Keswick Dam, Bend Bridge) would not change by more than 0.1°F compared to the No Action/No Project Alternative in any month of the year. In most months, the monthly mean temperatures would be essentially equivalent to or less than the No Actin/No Project Alternative. There would be fewer months when water temperatures could exceed 56°F at Keswick Dam or 60° F at Bend Bridge, relative to the No Action/No Project Alternative. There would not be any substantial decrease in annual early-lifestage survival of fall-run, late fall-run, winter-run, or spring-run chinook salmon in any individual year relative to the No Action/No Project Alternative.	Flow and temperature-related impacts: Less than significant.	None proposed.
Cumulative Condition. Monthly mean flows below Keswick Dam in the upper Sacramento River would be reduced by up to 9.4 percent relative to the existing condition. Modeling results indicate that monthly mean flows below Keswick Dam would not be reduced below the NMFS Biological Opinion 3,250 cfs threshold for the protection of winter-run chinook salmon rearing and downstream passage in any month of the October through March period. Long-term average temperatures for the upper Sacramento River (Keswick Dam, Bend Bridge) would change substantially from the existing condition with several additional months when temperatures exceed temperature thresholds identified in the NMFS Biological Opinion for winter-run chinook salmon, relative to the existing condition. Additionally, there would be a decrease in the long-term average early-lifestage survival of more than 10 percent in 11 years for fall-run and four years for winter-run chinook salmon; no decreases of more than 10 percent would be expected for late-fall-run and increases in survival would be anticipated for spring-run, relative to the existing condition.	Flow-related impacts: Less than significant. Temperature-related impacts: Potentially significant.	

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
FISH RESOURCES AND AQUATIC HABITAT (Section 3.5) (Continued)		
Upper Sacramento River (continued).		
Action Alternatives' Incremental Contribution to the Cumulative Condition. The future with the project (cumulative condition) would not result in more than a 0.1ºF change in the long-term average temperature in the upper Sacramento River for any month of the year relative to the future base condition (future with project diversion held at 8,500 AFA). Additionally, there would be only one additional month when temperature would potentially exceed the NMFS Biological Opinion temperature thresholds. There would not be substantial decreases in annual early-lifestage survival of fall-run, late-fall-run, winter-run, or spring-run chinook salmon in any individual year under the cumulative condition compared to the future base. These results indicate that the Action Alternatives' incremental contribution to the cumulative conditions would not be considerable.	Temperature-related impacts: Less than significant.	None proposed.
Lower Sacramento River.		
Action Alternatives Compared to the Existing Condition. The long-term average flow at Freeport in the lower Sacramento River would be within 0.2 percent of the long-term average under the existing condition in all months of the year. Flow reductions of more than five percent would occur in only one month relative to the existing condition. Based on these flow results, physical habitat availability and immigration of adult or emigration of juvenile anadromous fish would not be adversely affected relative to the existing condition. Long-term average temperatures at Freeport would not change more than 0.1°F during any month of the year; monthly mean temperatures would be essentially equivalent to the existing condition for all but one month of the simulation. The number of years in which water temperature would exceed water temperatures indices would be similar to the existing condition during the March through November period. Monthly mean water temperatures would be essentially equivalent to the No Action/No Project Alternative for all but one month (827 out of 828).	Flow-related impacts: Less than significant. Temperature-related impacts: Less than significant.	None proposed. None proposed.
Action Alternatives Compared to No Action/No Project (Future). The long-term average flow at Freeport in the lower Sacramento River would be within 0.3 percent of the long-term average under the No Action/No Project Alternative in all months of the year. Flow reductions of more than five percent would occur in only four months relative to the No Action/No Project Alternative. Based on these flow results, physical habitat availability and immigration of adult or emigration of juvenile anadromous fish would not be adversely affected relative to the existing condition.	Flow-related impacts: Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
FISH RESOURCES AND AQUATIC HABITAT (Section 3.5) (Continued)		
Lower Sacramento River (continued).		
Action Alternatives Compared to No Action/No Project (Future) (continued). Long-term average water temperatures at Freeport would not change more than 0.1°F during any month of the year; monthly mean temperatures would be essentially equivalent to the existing condition for all but one month of the simulation. The number of years in which water temperature would exceed water temperature indices would be similar to the No Action/No Project Alternative during the March through November period, with only four additional occurrences above the water temperature indices. Monthly mean water temperatures would be essentially equivalent to the No Action/No Project Alternative for most months (825 out of 828).	Temperature-related impacts: Less than significant.	None proposed.
Cumulative Condition. The long-term average flow at Freeport would be within five percent of the long-term average under the existing condition in all months of the year. Based on these flow results, physical habitat availability and immigration of adult or emigration of juvenile anadromous fish would not be adversely affected relative to the existing condition. Long-term average water temperature at Freeport would not change more than 0.3ºF relative to the existing condition. The number of years that temperatures exceed the temperature thresholds would increase during March through November and would be considered potentially significant.	Flow-related impacts: Less than significant. Temperature-related impacts: Potentially significant.	
Action Alternatives' Incremental Contribution to the Cumulative Condition. Long-term average temperatures at Freeport would not change by more than 0.1ºF under the cumulative condition (future with the project) compared to the future base (future with project diversions held at 8,500 AFA). The number of years that temperatures exceed temperature thresholds would be only slightly increased during the March through November period but would not be considered significant. Based on these results, the incremental contribution of the Action Alternatives would not be considered significant.	Temperature-related impacts: Less than significant.	None proposed.
Delta fish populations.		
Action Alternatives Compared to the Existing Condition. Reductions in the long-term average Delta outflow of up to 0.3 percent for any given month could occur relative to the existing condition. Delta outflow reduction of more than three percent occurred during only seven individual months of the February to June period, relative to the existing condition. There would be no shift in the long-term average position of X2, relative to the existing condition; the maximum upstream shift for any individual month of any individual year would be less than 1 kilometer (km) (0.2 km). All model simulations assumed compliance with SWRCB X2 and Delta maximum export ratio requirements.	Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
FISH RESOURCES AND AQUATIC HABITAT (Section 3.5) (Continued)		
Delta fish populations (continued).		
Action Alternatives Compared to No Action/No Project Alternative (Future). Reductions in the long-term average Delta outflow of up to 0.3 percent for any given month could occur relative to No Action/No Project Alternative. Delta outflow reduction of more than three percent occurred during only eight individual months of the February to June period, relative to the No Action/No Project Alternative. There would be no shift in the long-term average position of X2 for 11 months of the year, relative to the No Action/No Project Alternative; in November, the shift would be up to 0.1 km shift. The maximum upstream shift for any individual month of any individual year would be no more than 1.1 km. All model simulations assumed compliance with SWRCB X2 and Delta maximum export ratio requirements.	Less than significant.	None proposed.
Cumulative Condition. The cumulative condition would potentially result in decreased Delta outflow and shifts in the position of X2 that would be considered potentially significant, compared to the existing condition.	Potentially significant.	
Action Alternatives' Incremental Contribution to the Cumulative Condition. Reductions in the long-term average Delta outflow of up to 0.3 percent could occur under the cumulative condition relative to the future base condition. Shifts in the long-term average position of X2 would not be by more than 0.1 km. Based on these results, the Action Alternatives' incremental contribution to the cumulative condition would not be considerable.	Less than significant.	None proposed.
Oroville Reservoir warmwater fisheries.		
Action Alternatives Compared to the Existing Condition and No Action/No Project Alternative. The Action Alternatives would not result in substantial changes in elevation at Oroville Reservoir relative to the existing condition or to the No Action/No Project Alternative. Any small changes that may occur would be considered to represent less-than-significant impacts upon warmwater fish.	Less than significant.	None proposed.
Cumulative Condition. The long-term average end-of-month water surface elevation in Oroville Reservoir would be reduced under the cumulative condition. The largest decrease in water surface elevation during the March through September season would be up to 75 feet for any individual year for the 70-year period included in the analysis. Modeling results indicate that the frequency of nest-dewatering would increase substantially in Oroville Reservoir under the cumulative condition, relative to the existing condition.	Potentially significant.	
Action Alternatives' Incremental Contribution to the Cumulative Condition. No substantial changes in reservoir elevation would be anticipated under the cumulative condition relative to the future base. The increase in future SWP demands is the primary factor leading to cumulative effects. The Action Alternatives' incremental contribution to the cumulative condition would not be considerable.	Less-than-significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
FISH RESOURCES AND AQUATIC HABITAT (Section 3.5) (Continued)		
Oroville Reservoir coldwater fisheries.		
Action Alternatives Compared to the Existing Condition and the No Action/No Project Alternative. The Action Alternatives would not result in substantial changes in storage, elevation, or temperature at Oroville Reservoir relative to the existing condition or to the No Action/No Project Alternative. Any small changes that may occur would be considered to represent less-than-significant impacts upon coldwater fish.	Less than significant.	None proposed.
Cumulative Condition. The long-term average end-of-month storage elevation in Oroville Reservoir would be slightly reduced under the cumulative condition. The largest decrease in long-term average end-of-month storage would be approximately 8.3 percent during the month of September. The relatively small reductions in reservoir storage would not be expected to adversely affect the reservoir's coldwater fisheries because coldwater habitat would remain available within the reservoir during all months of all years and anticipated seasonal reductions in storage would not be expected to adversely affect the primary prey species utilized by coldwater fish.	Less than significant.	None proposed.
Lower Feather River fisheries.		
Action Alternatives Compared to the Existing Condition and the No Action/No Project Alternative. The Action Alternatives would not result in substantial changes in flow or temperature in the Feather River relative to the existing condition or the No Action/No Project Alternative condition. Any small changes that may occur would be considered to represent less-than-significant impacts upon Feather River fish.	Flow and temperature-related impacts: Less than significant.	None proposed.
Cumulative Condition. The long-term average flow below Oroville Dam would be reduced by up to 14.1 percent over the 70-year period of record. These reductions would be considered potentially significant. Long-term average water temperatures would not be reduced by more than 2.2ºF. There would be only four months out of 828 that would show increases greater than 0.3ºF. These small increases in water temperatures would be expected to have a less-than-significant impact on fish resources of the Feather River.	Flow-related Impacts: Potentially significant. Temperature-related Impacts: Less than significant.	
Action Alternatives' Incremental Contribution to the Cumulative Condition. The Action Alternatives would not result in an incremental contribution to water temperature impacts for the Feather River under the cumulative condition.	Flow-related impacts: Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
TERRESTRIAL RESOURCES (SECTION 3.6)		
FACILITIES-RELATED IMPACTS		
Construction -related disturbance of special-status species.		
No Action/No Project Alternative. The changed timing of seasonal pump station installation and removal would not be expected to result in disturbance of terrestrial resources that differs from the existing condition. The site is already highly disturbed from previous activities associated with Auburn Dam and annual seasonal pump station construction.	Less than significant.	None proposed.
Action Alternatives. Construction-related increases in noise and human activity would not be expected to disturb endangered or threatened bird species that potentially use the area (i.e., bald eagle, little willow flycatcher, and American peregrine falcon) because they are rarely seen and are not known to nest in the area. Individuals foraging in the area could easily use other similar or higher quality habitats in the canyon. Surveys conducted for the project indicate that red-legged frogs do not utilize the ponds in the project area. Special-status species (i.e., California horned lizard, spotted bat, greater mastiff bat, and yellow-legged frogs) may be temporarily or permanently displaced by earthwork and human activity in the area. Removal of vegetation potentially would result in disturbance of individuals. The Upstream Diversion Alternative would not result in the overall benefits associated with the restored river channel, but may lessen the long-term disturbance of individual species, relative to the existing condition or No Action/No Project Alternative, because annual operation and maintenance of the year-round facility would not involve the earthwork associated with installation/removal of the seasonal facilities.	Endangered/threatened species: Less than significant. Construction impact upon special-status species: Less than significant.	3.2-1: Establish Buffer Zone to Avoid Disturbance of and Prevent the Permanent Loss of Riparian, Wetland, and Pond Vegetation and Associated Habitat 3.2-2: Minimize Impacts Upon State and Federal Special-Status Species in the Project Area 3.2-3: Measures for Entrapped, Injured or Dead Special-Status Animal Species 3.2-4: Restoration of Permanent Riparian Wetland and Pond Vegetation/ Habitat Loss
Construction-related disturbance or removal of riparian and wetland habitat.		
No Action/No Project Alternative. The changed timing of seasonal pump station installation and removal would not be expected to result in disturbance of riparian or wetland resources that differs from the existing condition. Installation and removal of the seasonal pump station facilities, including placement of the intake pipeline and dredging of the sump pond would continue to take place according to a CDFG Streambed Alteration Agreement with terms and conditions to protect habitats and individual special-status species.	Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
TERRESTRIAL RESOURCES (SECTION 3.6) (Continued)		
Construction-related disturbance or removal of riparian and wetland habitat (continued).		
Proposed Project. Temporary and permanent loss of riparian and wetland habitats has the potential to effect special-status and other species. *Foothill Yellow-Legged Frog* - Disturbance or loss of riparian or wetland habitat could result in harm or death of foothill yellow-legged frogs that may be present in the study area. *Western Toad and Chorus Frog* - Loss of wetland habitat would potentially result in the harm or death of these species. *Wetland Areas* - Placement of excavated materials on the eastern keyway bench would result in the fill of acres of potential wetland. Restoration of the river channel would be expected to result in new areas of riparian and wetland areas that would be anticipated to replace the lost habitat values.	Less than significant.	3.2-4: Restoration of Permanent Riparian, Wetland and Pond Vegetation/Habitat Loss/ 3.2-2: Minimize impacts upon state and federal special-status species in the Project Area.
Upstream Diversion Alternative. Impacts for riparian and wetland habitat and associated species generally would be as described for the Proposed Project. However, the Upstream Diversion Alternative would result in the loss of up to 0.11 acre of potential wetland habitat. Because the river would not be restored, other means of replacing or restoring wetland areas would be required.	Less than significant.	3.2-2: Minimize impacts upon state and federal special-status species in the Project Area. 3.2-4: Restoration of Permanent Riparian, Wetland and Pond Vegetation/ Habitat Loss.
DIVERSION-RELATED IMPACTS		
No Action/No Project Alternative Compared to Existing Condition. The increased pump station diversion under the No Action/No Project Alternative would be less than evaluated for the Action Alternatives (see below). Based on the evaluation of modeling performed for the Action Alternatives, it is expected that the No Action/No Project Alternative would not result in significant reductions of river flows or reservoir elevations such that terrestrial resources would be adversely affected. Additionally, the No Action/No Project Alternative would not be expected to result in considerable contributions to cumulative impacts.	Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
TERRESTRIAL RESOURCES (SECTION 3.6) (Continued)		
Upper American River riparian vegetation, habitat and associated species.		
Action Alternatives Compared to the Existing Condition. Changes in upper American River flows would not be of sufficient frequency or magnitude to adversely affect riparian vegetation, relative to the existing condition. No adverse riparian habitat or associated species impacts would be anticipated.	Less than significant.	None proposed.
Action Alternatives Compared to No Action/No Project Alternative (Future). Changes in upper American River flows would not be of sufficient frequency or magnitude to adversely affect riparian vegetation, relative to the No Action/No Project Alternative. No adverse riparian habitat or associated species impacts would be anticipated.	Less than significant.	None proposed.
Cumulative Condition. Changes in upper American River flows would not be of sufficient frequency or magnitude to adversely affect riparian vegetation, relative to the existing condition. No adverse riparian habitat or associated species impacts would be anticipated.	Less than significant.	
Lower American River riparian vegetation, habitat and associated species.		
Action Alternatives Compared to the Existing Condition. Changes in lower American River flows would result in slightly more frequent reduction of flows below the indices for cottonwood growth and terrace inundation. These reduced flows would result in a slight increase in the number of consecutive occurrences where flows would be reduced below the indices, relative to the existing condition. Overall, the flow reductions are not considered to be of sufficient magnitude and/or frequency to have long-term effects on the population and growth of cottonwoods/riparian vegetation as to affect the habitat value for special-status species or other associated species, relative to the existing condition/.	Less than significant.	None proposed.
Action Alternatives Compared to No Action/No Project Alternative (Future). Changes in lower American River flows would result in slightly more frequent reduction of flows below the indices for cottonwood vegetation, relative to the No Action/No Project Alternative. However, these reductions are not considered to be of substantial magnitude and/or to occur with enough frequency to have long-term population growth and maintenance of cottonwoods/riparian vegetation or to affect the habitat value for special-status species or other associated species relative to the No Action/No Project Alternative.	Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
TERRESTRIAL RESOURCES (SECTION 3.6) (Continued)		
Lower American River riparian vegetation, habitat and associated species (continued).		
Cumulative Condition. Changes in lower American River flows would result in more frequent reduction of flows below the indices for cottonwood growth and terrace inundation. Flows would be below the maintenance of radial growth index up to approximately 6.4 percent more often and below the some growth index up to 6.4 percent more often than under the existing condition. Reduced flows in the cumulative condition would result in six more occurrences of two or more consecutive months below the maintenance of radial growth index and in five additional occurrences of two or more consecutive months below the some growth index; however, these occurrences would not be in critical growing months (April through July). Overall, the cumulative condition flow reductions are not considered to be of sufficient magnitude and/or frequency to have long-term effects on the population and growth of cottonwoods/riparian vegetation or to affect the habitat value for special-status or other associated species, relative to the existing condition.	Less than significant.	
Lower American River special-status species dependent upon backwater pond/marsh habitats.		
Action Alternatives Compared to the Existing Condition. Modeling results indicate that backwater pond/marsh habitat recharge would not be significantly altered, relative to the existing condition; therefore, no adverse effects to these species would be expected to occur, relative to the existing condition.	Less than significant.	None proposed.
Action Alternatives Compared to No Action/No Project Alternative (Future). Modeling results indicate that backwater pond/marsh habitat recharge would not be significantly altered, relative to the No Action/No Project Alternative; therefore, no adverse effects to these species would be expected to occur, relative to the No Action/No Project Alternative.	Less than significant.	None proposed.
Cumulative Condition. Modeling results indicate that backwater pond/marsh habitat recharge would not be significantly altered, relative to the existing condition; therefore, no adverse effects to these species would be expected to occur, relative to the existing condition.	Less than significant.	
Lower American River elderberry shrubs/VELB.		
Action Alternatives Compared to the Existing Condition. Backwater ponds/habitats would not be expected to be significantly altered, relative to the existing condition; therefore, elderberry shrub and critical habitat for VELB would not be expected to be adversely affected.	Less than significant.	None proposed.
Action Alternatives Compared to No Action/No Project Alternative (Future). Backwater ponds/habitats would not be expected to be significantly altered, relative to the No Action/No Project Alternative; therefore, elderberry shrub and critical habitat for VELB would not be expected to be adversely affected.	Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
TERRESTRIAL RESOURCES (SECTION 3.6) (Continued)		
Lower American River elderberry shrubs/VELB (continued).		
Cumulative Condition. Backwater ponds/habitats would not be expected to be significantly altered, relative to the existing condition; therefore, elderberry shrub and critical habitat for VELB would not be expected to be adversely affected.	Less than significant.	
Folsom, Shasta, Trinity, and Oroville reservoir vegetation.		
Action Alternatives Compared to the Existing Condition. Long-term average end-of-month water elevations for Folsom, Trinity, Shasta, and Oroville reservoirs would be essentially equivalent to the existing condition (March through September). Slight reductions of monthly mean elevations would not be expected to affect habitat values at these reservoirs.	Less than significant.	None proposed.
Action Alternatives Compared to No Action/No Project Alternative (Future). Long-term average end-of-month water elevations for Folsom, Trinity, Shasta, and Oroville reservoirs would be essentially equivalent to the No Action/No Project Alternative. Slight reductions of monthly mean elevations would not be expected to affect habitat values at these reservoirs.	Less than significant.	None proposed.
Cumulative Condition. Long-term average end-of-month water elevations for Folsom, Shasta and Trinity, reservoirs would be reduced relative to the existing condition with reductions ranging from 2 to 11 feet during growing season months (March through September). The anticipated reductions would not affect areas of high and consistent habitat value which would remain available for species associated with the reservoir. *Oroville Reservoir* - Compared to the existing condition, the cumulative condition would result ins substantially lower long-term average end-of-month elevation for the March through September vegetation growing period over the 70-year period of record. Long-term average end-of-month elevation reductions for Oroville Reservoir would range from six to 18 feet. During individual years, reductions of up to 76 feet in end-of-month elevation would occur.	Folsom, Shasta and Trinity Reservoirs: Less than significant. Oroville Reservoir: Potentially significant.	
Action Alternatives' Incremental Contribution to the Cumulative Condition. No substantial changes in Oroville Reservoir elevation would be anticipated under the cumulative condition relative to the future base. The increase in future SWP demands is the primary factor leading to cumulative effects. The Action Alternatives' contribution to the cumulative condition would not be considerable.	Oroville Reservoir: Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
TERRESTRIAL RESOURCES (SECTION 3.6) (Continued)		
Upper Sacramento River riparian vegetation.		
Action Alternatives Compared to the Existing Condition. Long-term average flows of the upper Sacramento River during the growing season (March through October) would be essentially equivalent or slightly increased relative to the existing condition. Decreases ranging from one to 18 cfs would occur; however, during the critical growing season months, river flows would potentially increase. The greatest long-term average flow reduction would be only one percent. Changes in flows of the upper Sacramento River would not be expected to adversely affect riparian vegetation and associated habitat values or species, relative to the existing condition.	Less than significant.	None proposed.
Action Alternatives Compared to No Action/No Project Alternative (Future). Long-term average flows of the upper Sacramento River during the growing season (March through October) would be essentially equivalent to the No Action/No Project Alternative. Decreases ranging from one to 27 cfs would occur, however, during the critical growing season months, river flows would potentially increase. The greatest long-term average flow reduction would be only two percent. Changes in flows of the upper Sacramento River would not be expected to adversely affect riparian vegetation and associated habitat values or species, relative to the No Action/No Project Alternative.	Less than significant.	None proposed.
Cumulative Condition. Long-term average flows during the March through October growing season would be reduced, relative to the existing condition with decreases of 80 to 825 cfs. These decreases would be small, considering the monthly mean flow range of over 5,000 to over 13,000 cfs. The anticipated flow reduction would not be of sufficient magnitude and/or frequency to significantly alter riparian vegetation and related species, relative to the existing condition.	Less than significant.	
Lower Sacramento River riparian vegetation.		
Action Alternatives Compared to the Existing Condition. Long-term average flow reduction in the lower Sacramento River would range from 17 to 24 cfs during the growing season (March through October), relative to the existing condition. The greatest long-term average flow reduction would be only two percent. Changes in flows of the lower Sacramento River would not be expected to adversely affect riparian vegetation and associated habitat values or species, relative to the existing condition.	Less than significant.	None proposed.
Action Alternatives Compared to No Action/No Project Alternative (Future). The greatest long-term average flow reduction would be only three percent, relative to the No Action/No Project Alternative. Long-term average flow decreases would range from 10 to 47 cfs during the growing season, relative to the No Action/No Project Alternative. Changes in flows of the lower Sacramento River would not be expected to adversely affect riparian vegetation and associated habitat values or species, relative to the No Action/No Project Alternative.	Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
TERRESTRIAL RESOURCES (SECTION 3.6) (Continued)		
Lower Sacramento River riparian vegetation (continued).		
Cumulative Condition. The greatest long-term average flow reduction would be less than five percent, relative to the existing condition. Long-term average flow reductions would range from 399 to 828 cfs during most months, with increases ranging from 36 to 466 cfs in early spring and mid-summer months. The frequency and magnitude of the flow reductions would be small considering the monthly mean flow range of over 11,000 to over 33,000 cfs during the growing season months. Existing riparian habitats of the lower Sacramento River would not be expected to be adversely affected under cumulative conditions.	Less than significant.	
Delta riparian vegetation and special-status species.		
Action Alternatives Compared to the Existing Condition. The long-term average position of X2 would not shift relative to the existing condition; the maximum shift in any individual month would be 0.7 km (less than the 1 km threshold). Lower Sacramento River flows and inflow to the Delta would not be reduced such that habitats or species would be adversely affected.	Less than significant.	None proposed.
Action Alternatives Compared to No Action/No Project Alternative (Future). The long-term average position of X2 would not shift relative to the No Action/No Project Alternative; the maximum shift in any individual month would be 0.8 km. Lower Sacramento River flows and inflow to the Delta would not be reduced such that habitats or species would be adversely affected.	Less than significant.	None proposed.
Cumulative Condition. Long-term flow reductions of the lower Sacramento River would not be expected to alter the riparian habitat of the Delta. Shifts in the long-term average position of X2 would be considered minor and would not adversely affect vegetation and associated habitat or species.	Less than significant.	
Feather River vegetation and special-status species.		
Action Alternatives Compared to the Existing Condition and the No Action/No Project Alternative (Future). The Action Alternatives would not result in substantial changes in flow in the Feather River relative to the existing condition or to the No Action/No Project Alternative. Any small change in flow that may occur would be considered to represent a less-than-significant impact.	Less than significant.	None proposed.
Cumulative Condition. Compared to the existing condition, the cumulative condition would result in changes in flow in the Feather River during the March to October growing season ranging from a reduction of 5.7 percent in March to an increase of 36.4 percent in August. Because the decreases in flows would occur when flows are already very low in the March to October period, such reductions may adversely affect riparian vegetation on the Feather River.	Potentially significant.	

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
TERRESTRIAL RESOURCES (SECTION 3.6) (Continued)		
Feather River vegetation and special-status species (continued).		
Action Alternatives' Incremental Contribution to the Cumulative Condition. No substantial changes in reservoir elevation would be anticipated under the cumulative condition relative to the future base. The increase in future SWP demands is the primary factor leading to cumulative effects. The Action Alternatives' incremental contribution to the cumulative condition would not be considerable.	Less than significant.	None proposed.
WATER QUALITY (Section 3.7)		
FACILITIES-RELATED IMPACTS		
Construction-related increase in sediment and turbidity in the North Fork American River affecting downstream water quality.		
No Action/No Project Alternative. Installation and removal of the seasonal pump station facilities would not be expected to increase sediment and turbidity levels in the river compared to the existing condition. However, due to the extended operation season, the facilities would be more vulnerable to damage from high river flows, potentially requiring occasional rebuilding and reinstallation of facilities more frequently than under the existing condition. Reclamation would continue to comply with the Corps, RWQCB, and CDFG regulatory permit terms and conditions. As needed, additional consultations and/or coordination would take place in response to high flow events requiring dredging or other work outside of the installation/removal permit terms and conditions.	Less than significant.	None proposed.
Action Alternatives. Compared to existing and No Action/No Project Alternative conditions, construction of the pump station and diversion/intake and associated facilities (pipelines, roadways) at the project site would involve substantial earthwork and some in-river activity. Under the Proposed Project, the construction activity also includes development of the public river access features. The Action Alternatives would increase sediment and turbidity in the North Fork American River, which potentially would affect the quality of water available for downstream beneficial uses.	Less than significant.	3.3-1: Removal of Construction Litter and Debris 3.3-2: Construction-related Water Quality Protection Measures
Pump station operation and maintenance-related increase in sediment and turbidity in the North Fork American River affecting downstream water quality.		
No Action/No Project Alternative. Operation and maintenance of the seasonal pump station facilities would not be expected to increase sediment and turbidity levels in the river compared to the existing condition. Reclamation would continue to comply with regulatory agency permit terms and conditions.	Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
WATER QUALITY (Section 3.7) (Continued)		
Pump station operation and maintenance-related increase in sediment and turbidity in the North Fork American River affecting downstream water quality.		
Action Alternatives. Operation and maintenance of the year-round pump station facilities would be expected to result in less frequent in-river (dredging/removal of accumulated sediment at diversion/intake) and ground surface disturbances (road maintenance/rehabilitation) compared to existing and No Action/No Project Alternative conditions.	Less than significant/beneficial.	3.3-2: Project Operation and Maintenance Water Quality Protection
Proposed Project. The river access/parking could accommodate up to 53 vehicles at one time on a peak recreation day leading to potential increased contribution of vehicular and human-related pollutants to local surface water runoff.	Less than significant.	3.3-4: Minimize Water Quality Impacts From Increased Public Access
Cumulative Facilities-Related Impacts		
Implementation of the selected alternative would require permit compliance and incorporation of BMPs to minimize water quality impacts to levels considered less than significant. It is expected that regulatory agencies would require the same level of river water quality protection of other planned/proposed projects in the study area thereby reducing the potential for cumulative water quality degradation.	Less than significant.	No additional measures proposed.
DIVERSION-RELATED IMPACTS		
Increased North Fork American River diversions and changes in CVP operations could result in reduced river flows and reservoir elevations potentially increasing contaminant concentrations, affecting water quality available downstream and at other locations in the CVP and SWP systems.		
No Action/No Project Alternative Compared to Existing Condition. The increased pump station diversion under the No Action/No Project Alternative would be less than evaluated for the Action Alternatives (see below). Based on the evaluation of modeling performed for the Action Alternatives, it is expected that the No Action/No Project Alternative would not result in significant increases in contaminant concentrations downstream of the project site or in other CVP system water bodies.	Less than significant.	None proposed.
Action Alternatives Compared to Existing Condition. Reduced contribution of high quality flows from the North Fork American River would potentially affect water quality in downstream water bodies by reducing dilution flows. Compared to the existing condition, hydrologic modeling indicates the potential for long-term reductions in river flows and reservoir storage under the Action Alternatives as follows: Folsom Reservoir storage - less than 1 percent Lower American River flows - less than 2 percent Shasta and Trinity Reservoir storage - less than 0.1 percent Upper and lower Sacramento River flows - less than 0.1 percent Oroville Reservoir storage and Feather River flows - less than 1 percent	Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
WATER QUALITY (Section 3.7) (Continued)		
DIVERSION-RELATED IMPACTS (Continued)		
Action Alternatives Compared to Existing Condition (continued). Potential increases in constituent concentrations associated with decreased dilution capacity would not be expected to cause state or federal drinking water quality criteria or standards to be exceeded within the study area.		
Action Alternatives Compared to No Action/No Project (Future). Compared to the future No Action/No Project Alternative conditions, hydrologic modeling indicates the potential for long-term average reductions in river flows and reservoir storage under the Action Alternatives as follows: Folsom Reservoir storage - less than 1 percent Lower American River flows - less than 2 percent Shasta and Trinity Reservoir storage - less than 0.1 percent Upper and lower Sacramento River flows - less than 0.1 percent Oroville Reservoir storage and Feather River flows - less than 1 percent Potential increases in constituent concentrations associated with decreased dilution capacity would not be expected to cause state or federal drinking water quality criteria or standards to be exceeded within the study area.	Less than significant.	None proposed.
Cumulative Condition. Compared to the existing condition, cumulative CVP system conditions would have substantially reduced reservoir storage levels and river flows. Hydrologic modeling comparisons to the existing condition indicate the potential long-term average reductions in river flows and reservoir storage under the cumulative condition as follows: Folsom Reservoir storage - up to 11 percent Lower American River flows -up to 15 percent Shasta Reservoir storage -up to 7 percent Trinity Reservoir storage - up to 5 percent Upper Sacramento River flows - up to 10 percent Lower Sacramento River flows - up to 5 percent Oroville Reservoir - up to 8 percent Feather River - up to 14 percent The greatest flow reductions would occur in months when river flow is already low - September, October, and November. Potential increases in constituent concentrations associated with decreased dilution capacity could contribute to exceedance of state or federal drinking water quality criteria or standards within the study area that would not occur in the existing condition.	Potentially significant.	

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
WATER QUALITY (Section 3.7) (Continued)		
DIVERSION-RELATED IMPACTS (Continued)		
Action Alternatives' Incremental Contribution to the Cumulative Condition. Hydrologic modeling results comparing the future with a year-round pump station and increased diversions to the future without the pump station or increased diversions (held at base diversion of 8,500 AFA) indicate the Action Alternatives would result in the following long-term average reductions of river flows and reservoir storage: Folsom Reservoir storage - less than 1.2 percent Lower American River flows - less than 2 percent Shasta Reservoir storage - less than 0.1 percent Trinity Reservoir storage - less than 0.2 percent Upper Sacramento River flows - less than 0.2 percent Lower Sacramento River flows - less than 0.3 percent Oroville Reservoir and Feather River - less than 1 percent	Less than significant.	None proposed.
Impacts to Delta water quality.		
No Action/No Project Alternative Compared to Existing Condition. The increased pump station diversion under the No Action/No Project Alternative would be less than evaluated for the Action Alternatives (see below). Based on the evaluation of modeling performed for the Action Alternatives, it is expected that the No Action/No Project Alternative would not impact Delta water quality.	Less than significant.	None proposed.
Action Alternatives Compared to Existing Condition. Delta outflow reductions of more than three percent occur in only 7 out of 350 months simulated, relative to the existing condition. No shift in the long-term average position of X2 was indicated by the modeling results, relative to the existing condition. PROSIM assumptions include conformance with X2 requirements of the SWRCB Interim Water Quality Control Plan and the Interior's Final Administrative Proposal for the Management of 3406(b)(2) water; therefore, the maximum export ratio would not be exceeded by implementation of the Action Alternatives.	Less than significant.	None proposed.
Action Alternatives Compared to No Action/No Project (Future). Delta outflow reductions of more than three percent occur in only 8 out of 840 months simulated (approximately 1 percent), relative to the No Action/No Project Alternative. In one month, an upstream shift of 0.1 km in the long-term average position of X2 was indicated by the modeling results, relative to the No Action/No Project Alternative. PROSIM assumptions include conformance with X2 requirements of the SWRCB Interim Water Quality Control Plan and the Interior's Final Administrative Proposal for the Management of 3406(b)(2) water; therefore, the maximum export ratio would not be exceeded by implementation of the Action Alternatives.	Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
WATER QUALITY (Section 3.7) (Continued)		
Impacts to Delta water quality (continued).		
Cumulative Condition. The greatest long-term average Delta outflow reduction under the cumulative condition, compared to the existing condition would be 8.3 percent. The long-term average position of X2 would move upstream by less than one kilometer, compared to the existing condition.	Potentially significant	
Action Alternatives' Incremental Contribution to the Cumulative Condition. Hydrologic modeling results comparing the future with a year-round pump station and increased diversions to the future without the pump station or increased diversions (held at base diversion of 8,500 AFA) indicate the Action Alternatives would reduce the long-term average Delta outflow by only up to 0.3 percent and contribute to a shift of the long-term average X2 position of not more than 0.1 km, relative to the future condition with diversions at existing levels.	Less than significant.	None proposed.
RECREATION (Section 3.8)		
FACILITIES-RELATED IMPACTS		
Public recreation trail access during construction.		
No Action/No Project Alternative. Activities associated with installation and removal and operation of the seasonal pump station would not change in a way that would affect project area recreation trail uses as compared to the existing condition.	Less than significant.	None proposed.
Action Alternatives Reclamation's construction contractor would limit recreation trail access during construction to protect public safety and to facilitate project construction. To the extent feasible, recreation access will be maintained adjacent to and through the site, depending upon the nature of the construction activity. Special trail events would be coordinated among CDPR event coordinators, event organizers, and Reclamation's construction contractor such that the permitted annual events that use the project area would not be adversely affected.	Less than significant.	3.4-1: Maintain Public Recreation Trail Access During Construction 3.4-2: Avoid Recreation Trail Closures That Affect the Western States Endurance Run, Tevis Cup Western States Trail Ride or the American River – 50-Mile Endurance Run
Auburn-to-Cool Trail		
No Action/No Project Alternative. Activities associated with installation and removal and operation of the seasonal pump station would not affect recreation use of the Auburn-to-Cool Trail.	Less than significant.	None proposed.
Proposed Project. Closure of the Auburn Dam construction bypass tunnel and restoration of the North Fork American River through the project area would result in bifurcation of the Auburn-to-Cool Trail.	Significant and unavoidable.	3.4-3: Auburn-to-Cool Trail (bridge/trail feasibility studies and contribution of funding)

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
RECREATION (Section 3.8) (Continued)		
Auburn-to-Cool Trail (continued)		
Upstream Diversion Alternative. The Upstream Diversion Alternative would not result in bifurcation of the Auburn-to-Cool Trail as the bypass tunnel would remain open, and flows would not be restored to the dewatered river channel.	Less than significant.	None proposed.
Project area trails and recreation uses and plans.		
No Action/No Project Alternative. Construction and operation activities associated with the continued use of the seasonal pump station would not introduce any additional public use in the project area relative to the existing condition. However, the continued unauthorized use of the river and presence of the bypass tunnel at the project site would remain unresolved public safety issues.	Potentially significant and unavoidable.	No feasible measures available under this alternative.
Proposed Project. The Proposed Project includes new trail ways and other design features, including designated parking for disabled river users, to minimize potential for trail user conflict associated with increased public use and introduction of vehicles. The Proposed Project is consistent with applicable recreation plans in the project and regional study areas. Closure of the bypass tunnel and development of a navigable waterway as part of the river restoration component of the Proposed Project would result in beneficial conditions as compared to the existing condition, No Action/No Project Alternative, and Upstream Diversion Alternative.	Less than significant/beneficial	3.4-4: Minimize Trail User Conflicts Due to Increased Public Access 3.4.-6: Provide Disabled Access Parking Area
Upstream Diversion Alternative. The bypass tunnel would remain open, posing a public safety threat to unauthorized boaters traveling through the site. Safety measures included in the design would reduce but not eliminate the safety hazard posed by the bypass tunnel.	Potentially significant and unavoidable.	No additional feasible measures available under this alternative.
Middle Fork/North Fork confluence recreation.		
Proposed Project. Restoration of the river channel at the project site would result in increased boat launching and passage at the Middle/North fork confluence, upstream of the project area. Currently, during peak recreation season (spring and summer) parking at the confluence is insufficient to meet the demand. Future comprehensive planning efforts to be undertaken by Reclamation and CDPR would include planning and development of projects to improve parking and other recreation use issues within the Auburn SRA.	Significant.	CDPR and Reclamation to address in update to Auburn SRA comprehensive plan.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
RECREATION (Section 3.8) (Continued)		
DIVERSION-RELATED IMPACTS		
No Action/No Project Alternative Compared to Existing Condition. The increased pump station diversion under the No Action/No Project Alternative would be less than evaluated for the Action Alternatives (see below). Based on the evaluation of modeling performed for the Action Alternatives, it is expected that the No Action/No Project Alternative would not result in significant reductions of river flows or reservoir elevations such that regional recreation resources would be adversely affected.	Less than significant.	None proposed.
Middle Fork American River recreation.		
Action Alternatives Compared to the Existing Condition. PCWA would continue to release water from Ralston Afterbay to support recreational and commercial whitewater rafting in the Middle Fork American River. To meet water supply and environmental instream flow requirements, the duration of daily releases would be reduced by a maximum of up to eight hours (two percent change) during one or more months of the June to October recreation season.	Potentially significant and unavoidable.	None proposed.
Action Alternatives Compared to No Action/No Project Alternative (Future). Because water supply diversions would increase under the No Action/No Project Alternative compared to the existing condition, the difference in the duration of daily releases from Ralston Afterbay to support recreational and commercial whitewater rafting in the Middle Fork American River between the Action Alternatives and No Action/No Project Alternative would be less than the eight-hour reduction (two percent change) determined in the comparison to the existing condition.	Potentially significant and unavoidable.	None proposed.
Lower American River recreation.		
Action Alternatives Compared to the Existing Condition. Changes in CVP operations associated with the Action Alternatives would result in up to a 3.6 percent decrease in the frequency of lower American River flows in the optimal river recreation flow range, and a decrease of 0.8 percent of the frequency of river flows in the minimum to maximum recreation flow range, compared to the existing condition.	Less than significant.	None proposed.
Action Alternatives Compared to No Action/No Project (Future). Lower American River mean monthly flows would be essentially the same as under the No Action/No Project Alternative (less than one percent reduction in the total number of months that fall within the minimum/maximum range or the optimum range). Water-based and enhanced recreation opportunities would not be adversely affected.	Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
RECREATION (Section 3.8) (Continued)		
Lower American River recreation (continued).		
Cumulative Condition. Long-term average flows in the lower American River would be up to seven percent lower than under the existing condition resulting in a five percent decrease in the number of months when flows would be within the optimal range and a three percent decrease of months when flows would be in the minimum to maximum recreation flow range.	Potentially significant.	
Action Alternatives' Incremental Contribution to the Cumulative Condition. Flows would fall below the optimum recreation flow range approximately one percent more often than the existing condition and below the minimum to maximum recreation flow range by less than one percent.	Less than significant.	None proposed.
Folsom Reservoir boating.		
Action Alternatives Compared to the Existing Condition. Hydrologic modeling indicates that Folsom Reservoir elevations would drop below the 420-foot elevation (all boat ramps operable) in four additional months (out of 490; less than one percent decrease in availability) compared to the existing condition. Throughout the boating season, the availability of at least one low-water boat ramp on each side of the reservoir would be approximately the same as under the existing condition. The availability of marina wet slips would be the same as the existing condition.	Less than significant.	None proposed.
Action Alternatives Compared to No Action/No Project (Future). Reservoir elevations would be below the minimum recreation surface elevation for boating and marinas in slightly more years than the No Action/No Project Alternative. However, throughout the boating season, the availability of at least one low-water boat ramp on each side of the reservoir would be approximately the same as under the No Action/No Project Alternative.	Less than significant.	None proposed.
Cumulative Condition. Under cumulative conditions, the usability of all boat ramps and marina wet slips would decrease by up to 7.6 percent; there would be no net change in the availability of at least one useable boat ramp on each side of the reservoir.	Potentially significant.	
Action Alternatives' Incremental Contribution to the Cumulative Condition. Boat ramp and marina wet slip usability would decrease in only one month (out of 70) compared to the existing condition.	Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
RECREATION (Section 3.8) (Continued)		
Folsom Reservoir swimming.		
Action Alternatives Compared to the Existing Condition. Lowered reservoir elevations during the peak swimming season (May through September) would occur infrequently compared to the existing condition. Overall, there would be two fewer months (out of 350) when reservoir elevations would be below the optimum and useable beach ranges.	Less than significant.	None proposed.
Action Alternatives Compared to No Action/No Project Alternative (Future). There would be no net effect on the frequency of reservoir elevations meeting the useable threshold for swimming opportunities at beaches during the recreation season; a less than one percent decrease in the frequency of elevations meeting the optimum level would occur, compared to the existing condition.	Less than significant.	None proposed.
Cumulative Condition. The frequency in which the water levels would be within the usable beach range would be reduced by seven percent; and by four percent for the optimum range.	Potentially significant.	
Action Alternatives' Incremental Contribution to the Cumulative Condition. Folsom Reservoir elevations would be essentially the same for the future with the project (cumulative condition) and future base condition (future with the project diversions held at existing levels); indicating the Action Alternatives would not result in a considerable contribution to the cumulative condition.	Less than significant.	None proposed.
Shasta Reservoir recreation.		
Action Alternatives Compared to the Existing Condition. The total number of years when all boat ramps are usable and the total number of years when at least one public ramp is available on each of the reservoir arms would not change, compared to the existing condition. Shoreline and camping facilities also would not be affected, compared to the existing condition.	Less than significant.	
Action Alternatives Compared to No Action/No Project Alternative (Future). The long-term mean end-of-month water surface elevations during the recreation season would be essentially the same as the No Action/No Project Alternative.	Less than significant.	None proposed.
Cumulative Condition. Water level reductions below critical recreation thresholds would diminish recreation opportunities at Shasta Reservoir more frequently than under the existing condition.	Potentially significant.	
Action Alternatives' Incremental Contribution to the Cumulative Condition. Shasta Reservoir elevations would be unchanged for future with the project (cumulative condition) relative to the future base condition (future with the project diversions held at existing levels) for boat ramp and camping thresholds; elevations would be reduced below the shoreline threshold less than one percent of the time (one year for one month) indicating the Action Alternatives would not result in a considerable contribution to the cumulative condition.	Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
RECREATION (Section 3.8) (Continued)		
Trinity Reservoir recreation.		
Action Alternatives Compared to the Existing Condition. There would be no change in the frequency of reservoir levels required to allow for boat launching from the three major public boat ramps during the recreation season.	Less than significant.	None proposed.
Action Alternatives Compared to No Action/No Project Alternative (Future). There would be no change in the frequency of reservoir elevations required for boating and other water-related recreation, compared to the No Action/No Project Alternative.	Less than significant.	None proposed.
Cumulative Condition. Water level reductions below critical recreation thresholds would diminish recreation opportunities at two of the Trinity Reservoir arm boat ramps more frequently than under the existing condition. Overall, reservoir elevation reductions would be infrequent and would not adversely affect boating and other water-related recreation compared to the existing condition.	Less than significant.	
Upper Sacramento River recreation.		
Action Alternatives Compared to the Existing Condition. Hydrologic modeling indicates that the probability of upper Sacramento River flows meeting the 5,000 cfs minimum recreation flow would be unchanged, compared to the existing condition.	Less than significant.	None proposed.
Action Alternatives Compared to No Action/No Project Alternative (Future). Upper Sacramento River flows would be essentially the same as the No Action/No Project Alternative during the recreation season.	Less than significant.	None proposed.
Cumulative Condition. Hydrologic modeling indicates that the probability of upper Sacramento River flows meeting the 5,000 cfs minimum recreation flow would be lowered infrequently, compared to the existing condition.	Less than significant.	
Lower Sacramento River recreation.		
Action Alternatives Compared to the Existing Condition. Hydrologic modeling indicates that the probability of lower Sacramento River flows exceeding 10,000 cfs is identical in all months of the recreation season. In August, when existing condition flows are below 10,000 cfs, the Action Alternatives would result in slightly higher river flows.	Less than significant.	None proposed.
Action Alternatives Compared to No Action/No Project Alternative (Future). Lower Sacramento River flows would be essentially the same as the No Action/No Project Alternative during the recreation season.	Less than significant.	None proposed.
Cumulative Condition. The frequency of lower Sacramento River flows meeting or exceeding the 5,000 cfs minimum recreation flow would be essentially the same as the existing condition during the recreation season.	Less than significant.	

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
RECREATION (Section 3.8) (Continued)		
Delta recreation.		
Action Alternatives Compared to the Existing Condition. Hydrologic modeling indicates that Delta inflows would be reduced by about only 0.1 percent during the recreation season, compared to the existing condition.	Less than significant.	None proposed.
Action Alternatives Compared to No Action/No Project Alternative (Future). Flows into the Delta would be essentially the same as the No Action/No Project Alternative during the recreation season.	Less than significant.	None proposed.
Cumulative Condition. Sacramento River inflows would be decreased at most by approximately 850 cfs during the recreation season; because this amount is substantially less than the 13,200 to 19,200 cfs range of tidal influence on Delta inflows, it would not affect recreation opportunities available under the existing condition.	Less than significant.	
Consistency with the American River Parkway Plan.		
Action Alternatives Compared to the Existing Condition. The evaluation of lower American River flows indicates that the Action Alternatives would not result in recreation season flows below the D-1400 standard more often than the existing condition.	Less than significant.	None proposed.
Action Alternatives Compared to No Action/No Project Alternative (Future). The evaluation of lower American River flows indicates that Action Alternatives would not result in recreation season flows below the D-1400 standard more often than under the No Action/No Project Alternative.	Less than significant.	None proposed.
Cumulative Condition. The evaluation of lower American River flows indicates that cumulative conditions would not result in recreation season flows below the D-1400 standard more often than under the existing condition.	Less than significant.	
Consistency with state and federal Wild and Scenic River Act designations.		
Action Alternatives Compared to the Existing Condition. The evaluation of river flows indicates that the Action Alternatives would not diminish the recreation values and would be consistent with the state and federal recreational river designations.	Less than significant.	None proposed.
Action Alternatives Compared No Action/No Project Alternative (Future). The evaluation of river flows indicates that the Action Alternatives would not diminish the recreation values and would be consistent with the state and federal recreational river designations.	Less than significant.	None proposed.
Cumulative Condition. The evaluation of river flows indicates that the cumulative condition would potentially diminish the recreation values of designated river segments; however the Action Alternatives would not result in a considerable contribution to this effect and would not contribute to inconsistencies with the state and federal recreational river designations.	Less than significant.	

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
RECREATION (Section 3.8) (Continued)		
Oroville Reservoir recreation.		
Action Alternatives Compared to the Existing Condition and the No Action/No Project Alternative (Future). The Action Alternatives would not result in substantial changes in elevation at Oroville Reservoir relative to the existing condition or to the No Action/No Project Alternative (future) condition.	Less than significant.	None proposed.
Cumulative Condition. Compared to the existing condition, the cumulative condition would result in substantially lower long-term average end-of-month elevation for most months of the year over the 70-year period of record, with up to 18 feet reduction in long-term average end-of-month elevation in September, potentially resulting in significant cumulative impacts upon recreation.	Potentially significant.	
Action Alternatives' Incremental Contribution to the Cumulative Condition. No substantial changes in reservoir elevation would be anticipated under the cumulative condition relative to the future base. The increase in future SWP demands is the primary factor leading to cumulative effects. The Action Alternatives' incremental contribution to the cumulative condition would not be considerable.	Less than significant.	None proposed.
Feather River recreation.		
Action Alternatives Compared to the Existing Condition and the No Action/No Project Alternative (Future). The Action Alternatives would not result in substantial changes in Feather River flows relative to the existing condition or to the No Action/No Project Alternative (future) condition.	Less than significant.	None proposed.
Cumulative Condition. Compared to the existing condition, the Feather River would experience substantial changes in flow in most months of the year for the 70-year period of record. Changes in long-term average monthly mean flow would range from a decrease of 14.1 percent in November to an increase of 36.4 percent in August. Given the uncertainty associated with the potential effects that these flow reductions may have on recreation activities in the Feather River, impacts would represent a potentially significant impact.	Potentially significant.	
Action Alternatives' Incremental Contribution to the Cumulative Condition. No substantial changes in river flows would be anticipated under the cumulative condition relative to the future base. The increase in future SWP demands is the primary factor leading to cumulative effects. The Action Alternatives' incremental contribution to the cumulative condition would not be considerable.	Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
VISUAL RESOURCES (Section 3.9)		
FACILITIES-RELATED IMPACTS		
Construction-related effects on the visual character and views of the study area from sensitive receptors' viewpoints.		
No Action/No Project Alternative. Installation and removal of the seasonal pump station would involve few vehicles (six heavy construction vehicles) and up to 15 construction workers at the site daily over the course of several weeks (installation lasts four to six weeks, removal, two weeks) and would be virtually the same as under the existing condition with regard to visual impacts in the study area.	Less than significant.	None proposed.
Action Alternatives. Construction activity would introduce up to 54 pieces of heavy construction equipment and 50 workers during peak activity at the project site and at Oregon Bar (parking area) for a period of up to 22 months. Improvements to trail from turnaround to Oregon Bar would be performed manually, no construction equipment would be introduced to that area. *Residential Areas Along Western Canyon Ridgetop* - Although the visual character of the project site and Oregon Bar area would be changed as compared to the existing condition and No Action/No Project Alternative for the duration of the construction period, views of the few sensitive receptor locations that view the site would be limited to portions of the access roadways and related construction vehicles and would not result in a substantial visual impact. More scenic views of the canyon hillsides would not be obscured. *Western States Trail*. A limited portion of the trail would have intermittent views of the construction staging area and access road. Because of the limited number of sensitive receptors and temporary nature of the construction activities, no substantial visual character impact would be expected.	Less than significant.	None proposed.
Upstream Diversion Alternative. With the exception of the activities associated with Oregon Bar, visual impacts to residents and recreationists would be as described for the Proposed Project (above). Up to 24 pieces of heavy equipment and 50 construction workers would be at the site during peak activity.	Less than significant.	None proposed.
Operations and maintenance-related effects on the visual character and views of the study area from sensitive receptors' viewpoints.		
No Action/No Project Alternative. The primary visual change under the No Action/No Project Alternative compared to the existing condition would be the extended operational period leaving the seasonal pump station and associated facilities in place for up to eight months rather than four months. The facilities are visible only from the Auburn-to-Cool Trail Cofferdam Viewpoint, therefore affecting a limited number of potentially sensitive receptors for a limited duration of travel along the trail. This would not result in a substantial change in the visual character of the project site.	Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
VISUAL RESOURCES (Section 3.9) (Continued)		
Operations and maintenance-related effects on the visual character and views of the study area from sensitive receptors' viewpoints (continued).		
Action Alternatives. Restoration of the river channel would result in a potentially beneficial change from existing and No Action/No Project Alternative conditions in the local visual character for recreationists on the Western States Trail. Limited, intermittent views from ridgetop residential areas also would be improved. The Auburn-to-Cool Trail through the project site would be bifurcated; however, recreation use of the site and river passage through the site would experience more natural-looking scenery. Parking-related changes at the Auburn Dam Batch Plant plateau and increased public use of the area would result in a change in the type and level of activity visible from homes along the southwestern ridge of the canyon. The "rustic" improvements proposed for the parking area/river access use would change certain elements of the viewshed; however, because the batch plant is currently highly disturbed and littered with Auburn Dam-related remains, the improvements to the site would not degrade the view. Patches of ruderal vegetation may become covered by the parking lot. Minimal vegetation would be removed for the trail or turnaround. Overall, these uses would be considered consistent with the land use and recreational plans and character of the area.	Less than significant/potentially beneficial.	None proposed.
Upstream Diversion Alternative. The pump station would be partially visible from a limited number of residential viewpoints along the northwestern ridge. Because the enclosure would be painted a neutral color to blend with the surrounding landscape, it would not create a visual impairment at the project site.	Less than significant.	None proposed.
Cumulative Facilities-Related Impacts		
No substantial changes to the visual character of the canyon would be expected to occur with implementation of the Proposed Project; Foresthill Bridge modifications would provide improvement.	Less than significant.	
DIVERSION-RELATED IMPACTS		
No Action/No Project Alternative Compared to Existing Condition. The increased pump station diversion under the No Action/No Project Alternative would be less than evaluated for the Action Alternatives (see below). Based on the evaluation of modeling performed for the Action Alternatives, it is expected that the No Action/No Project Alternative would not result in significant reductions of river flows or reservoir elevations such that visual resources would be adversely affected.	Less than significant.	None proposed.
Visual character of the upper American River.		
All Conditions. Hydrologic modeling of the upper American River indicates that visual resources would not be affected by changes in MFP operations.	Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
VISUAL RESOURCES (Section 3.9) (Continued)		
Visual character of Folsom Reservoir.		
Action Alternatives Compared to Existing Condition. Hydrologic modeling indicates that reductions in surface water elevation under the Action Alternatives compared to the existing condition would be 10 feet or less.	Less than significant.	None proposed.
Action Alternatives Compared to No Action/No Project Alternative (Future). Hydrologic modeling indicates that in one month (February) over the 70-year simulation, reservoir elevation under the Action Alternatives would drop by more than 10 feet when compared to the No Action/No Project Alternative. However, because February is not a critical recreation month, this change in elevation would have a limited visual effect.	Less than significant.	None proposed.
Cumulative Condition. Hydrologic modeling indicates that under the cumulative condition, Folsom Reservoir elevations would drop below 10 feet approximately one percent more frequently than under the existing condition. These reductions would not be expected to substantially affect the visual character, relative to the existing condition.	Less than significant.	
Visual character of the lower American River.		
Action Alternatives Compared to Existing Condition. Hydrologic modeling indicates that minimal reductions in river flows would occur under the Action Alternatives compared to the existing condition. These changes would not affect the visual character or views of the lower American River.	Less than significant.	None proposed.
Action Alternatives Compared to No Action/No Project Alternative (Future). Hydrologic modeling indicates that minimal reductions in river flows would occur under the Action Alternatives compared to the No Action/No Project Alternative. The simulated flows would not alter the visual character or views of the river.	Less than significant.	None proposed.
Cumulative Condition. Reduced lower American River flows under cumulative conditions would not adversely affect the riparian vegetation of the viewshed, compared to the existing condition.	Less than significant.	
Visual character of Trinity and Shasta reservoirs.		
Action Alternatives Compared to Existing Condition. Hydrologic modeling indicates that reductions in surface water elevation under the Action Alternatives compared to the existing condition would be 10 feet or less at both Trinity and Shasta reservoirs. These changes would not affect the visual character or views of Trinity or Shasta reservoirs.	Less than significant.	None proposed.
Action Alternatives Compared to No Action/No Project Alternative (Future). Hydrologic modeling indicates that reductions in surface water elevation under the Action Alternatives compared to the No Action/No Project Alternative would be 10 feet or less at both Trinity and Shasta reservoirs. These changes would not affect the visual character or views of Trinity or Shasta reservoirs.	Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
VISUAL RESOURCES (Section 3.9) (Continued)		
Visual character of Trinity and Shasta reservoirs (continued).		
Cumulative Condition. Hydrologic modeling indicates that under the cumulative condition, Shasta and Trinity reservoir elevations would drop below 10 feet more frequently than under the existing condition. These changes would not affect the visual character or views of Trinity or Shasta reservoirs.	Less than significant.	
Visual character of the Sacramento River and Delta.		
Action Alternatives Compared to Existing Condition. Hydrologic modeling indicates that minimal reductions in upper and lower Sacramento River flows would occur under the Action Alternatives compared to the existing condition. These changes would not affect the visual character or views of the Sacramento River or Delta.	Less than significant.	None proposed.
Action Alternatives Compared to No Action/No Project Alternative (Future). Hydrologic modeling indicates that minimal reductions in upper and lower Sacramento River flows would occur under the Action Alternatives compared to the No Action/No Project Alternative. These changes would not affect the visual character or views of the Sacramento River or Delta.	Less than significant.	None proposed.
Cumulative Condition. Reductions of Sacramento River flows, compared to the existing condition, would not be expected to impact the riparian vegetation element of the viewshed; therefore, visual quality of the river would not be adversely altered.	Less than significant.	
Visual character of Oroville Reservoir.		
Action Alternatives Compared to the Existing Condition and No Action/No Project Alternative (Future). The Action Alternatives would not result in substantial changes in elevation at Oroville Reservoir relative to the existing condition or to the No Action/No Project Alternative (future) that would affect visual resources. Any small changes that may occur would be considered to represent less-than-significant impacts upon visual resources of Oroville Reservoir.	Less than significant.	None proposed.
Cumulative Condition. Compared to the existing condition, the cumulative condition would result in substantially lower long-term average end-of-month elevation for most months of the year. Long-term end-of-month elevation reductions for Oroville Reservoir would range from six to 18 feet, and, in individual years, reductions of up to 76 feet in end-of-month elevation would occur. Such reductions in reservoir elevation would expose large areas of bare soil around the reservoir and may affect vegetation growth resulting in potentially significant visual impacts.	Potentially significant.	

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
VISUAL RESOURCES (Section 3.9) (Continued)		
Visual character of Oroville Reservoir (continued).		
Action Alternatives' Incremental Contribution to the Cumulative Condition. No substantial changes in reservoir elevation would be anticipated under the cumulative condition relative to the future base. The increase in future SWP demands is the primary factor leading to cumulative effects. The Action Alternatives' incremental contribution to the cumulative condition would not be considerable.	Less than significant.	None proposed.
Visual character of the Feather River.		
Action Alternatives Compared to the Existing Condition and No Action/No Project Alternative (Future). The Action Alternatives would not result in substantial changes in flow in the Feather River relative to the existing condition or to the No Action/No Project Alternative (future) that would affect visual resources. Any small changes that may occur would be considered to represent less-than-significant impacts upon visual resources along the lower Feather River.	Less than significant.	None proposed.
Cumulative Condition. Compared to the existing condition, the cumulative condition would result in changes in flow during the March to October growing season ranging from a reduction of 5.7 percent in March to an increase of 36.4 percent increase in August. Because the decreases in flows would occur when flows are already low in the March to October period, such reductions may adversely affect riparian vegetation on the Feather River, and consequently, the visual character of the river.	Potentially significant.	
Action Alternatives' Incremental Contribution to the Cumulative Condition. No substantial changes in river flows would be anticipated under the cumulative condition relative to the future base. The increase in future SWP demands is the primary factor leading to cumulative effects. The Action Alternatives' incremental contribution to the cumulative condition would not be considerable.	Less than significant.	None proposed.
CULTURAL RESOURCES (Section 3.10)		
FACILITIES-RELATED IMPACTS		
Disturbance of cultural resources in the project area.		
No Action/No Project Alternative. Continued installation and removal of the seasonal pump station facilities would occur in areas already disturbed by Auburn Dam-related construction and by previous seasonal pump station construction; no previously undisturbed lands would be graded or excavated. The potential to encounter previously undisturbed cultural resources would be similar to the existing condition.	Less than significant.	3.6-1: Stop Construction Activities if Cultural Resources or Human Remains are Uncovered

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
CULTURAL RESOURCES (Section 3.10) (Continued)		
Disturbance of cultural resources in the project area (continued).		
Action Alternatives. Field inspection of the anticipated construction areas for the Proposed Project and Upstream Diversion Alternative confirmed that these lands all have been previously disturbed and that no known cultural resources exist in those areas. Although the Action Alternatives, particularly the Proposed Project, which includes the river channel restoration, involve extensive excavation and blasting activities, it is considered highly unlikely that buried cultural resources would be discovered.	Less than significant.	3.6-1: Stop Construction Activities if Cultural Resources or Human Remains are Uncovered
Proposed Project - Public River Access. Compared to existing, No Action/No Project Alternative, and Upstream Diversion Alternative conditions, the Proposed Project would result in increased public use of the Auburn Dam area for recreation. Because the APE contains no previously recorded cultural resources or historic properties and the site has been greatly altered, there is little likelihood that increased public use of the area would result in the discovery of buried cultural resources.	Less than significant.	3.6-1: Stop Construction Activities if Cultural Resources or Human Remains are Uncovered
Cumulative Facilities-Related Impacts		
The potential for facilities-related cultural resources impacts is considered to be site-specific. The alternatives would not be expected to result in any disturbance of cultural resources in the study area, and would therefore not result in a considerable contribution to cumulative impacts upon cultural resources. Additionally, project-specific protection measures to be implemented in the event unknown resources are discovered would reduce the potential effect.	Less than significant.	No additional protective measures proposed.
DIVERSION-RELATED IMPACTS		
No Action/No Project Alternative Compared to Existing Condition. The increased pump station diversion under the No Action/No Project Alternative would be less than evaluated for the Action Alternatives (see below). Based on the evaluation of modeling performed for the Action Alternatives, it is expected that the No Action/No Project Alternative would not result in changes in river flows or reservoir elevations for water bodies in the study area that would contribute to a significant effect upon cultural resources.	Less than significant.	None proposed.
Flows of the upper American River.		
Action Alternatives Compared to Existing Condition. Hydrologic modeling of the upper American River indicates that river flows under the Action Alternatives, would not fall below existing minimum flows and would not result in increased exposure of buried cultural resources compared to the existing condition. Additionally, due to the highly disturbed nature of the project area, it is unlikely that cultural resources remain in the study area.	Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
CULTURAL RESOURCES (Section 3.10) (Continued)		
Flows of the upper American River (continued).		
Action Alternatives Compared to No Action/No Project Alternative (Future). Under future conditions, the Action Alternatives would result in lower monthly mean flows relative to the No Action/No Project Alternative but would not drop below minimum flow levels during any month. The changes in flow would not result in increased exposure of buried cultural resources compared to No Action/No Project Alternative conditions. Additionally, due to the highly disturbed nature of the project area, it is unlikely that cultural resources remain in the study area.	Less than significant.	None proposed.
Cumulative Condition. The cumulative condition flows would not be expected to drop below existing minimum flows and would, therefore, not result in increased exposure of buried cultural resources. Additionally, due to the highly disturbed nature of the project area, it is unlikely that cultural resources remain in the study area.	Less than significant.	
Water surface elevation at Folsom Reservoir.		
Action Alternatives Compared to the Existing Condition. Hydrologic modeling of Folsom Reservoir indicates that reservoir elevations under the Action Alternatives, would not rise above maximum elevations or fall below minimum levels as compared to the existing condition and would not result in increased exposure of cultural resources relative to the existing condition.	Less than significant.	None proposed.
Action Alternatives Compared to No Action/No Project Alternative (Future). Under future conditions, the Action Alternatives would not result in a higher maximum elevation compared to the No Action/No Project Alternative. Lower monthly mean end-of-month water surface elevations would potentially occur in some winter months, however, these elevations would not be below the minimum reservoir elevation and would not result in increased exposure of cultural resources relative to the No Action/No Project Alternative.	Less than significant.	None proposed.
Cumulative Condition. The cumulative condition reservoir elevations would not rise above maximum reservoir elevations but would potentially fall below the minimum end-of-month elevation by up to three feet in two months (out of the 70-year simulation/840 months). Due to the limited frequency and magnitude of the reduced reservoir elevation, cumulative conditions would not be expected to result in increased exposure of cultural resources relative to the existing condition.	Less than significant.	
Flows of the lower American River.		
Action Alternatives Compared to the Existing Condition. Hydrologic modeling of the lower American River indicates that the Action Alternatives would result in maximum monthly mean river flows that would be virtually identical to those simulated for the existing condition.	Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
CULTURAL RESOURCES (Section 3.10) (Continued)		
Flows of the lower American River (continued).		
Action Alternatives Compared to No Action/No Project Alternative (Future). Under future conditions, the Action Alternatives would result in an increase of less than three percent in maximum monthly mean river flows during late-summer, fall and winter months, compared to the No Action/No Project Alternative. Because these months are not typical peak river flow months, the changes simulated would not result in damage to cultural resources that would not usually be submerged or affected by river flow fluctuations.	Less than significant.	None proposed.
Cumulative Condition. Under the cumulative condition, maximum monthly mean flows in the lower American River would be essentially the same or slightly lower than the existing condition; the changes simulated would not result in damage to cultural resources that would not usually be submerged or affected by river flow fluctuations.	Less than significant.	
Water surface elevation at Shasta Reservoir		
Action Alternatives Compared to the Existing Condition. Hydrologic modeling of Shasta Reservoir indicates that the Action Alternatives would result in slightly lower winter and spring end-of-month elevations and slightly higher summer end-of-month elevations when compared to the existing condition. These anticipated differences in reservoir elevation would not result in elevation fluctuations outside of the existing minimum and maximum fluctuation range.	Less than significant.	None proposed.
Action Alternatives Compared to No Action/No Project Alternative (Future). The modeling results indicate that future Shasta Reservoir levels under the Action Alternatives would not result in a higher maximum elevation but potentially would be slightly lower (ranging from one to five feet) than No Action/No Project Alternative minimum end-of-month levels.	Less than significant.	None proposed.
Cumulative Condition. The cumulative condition reservoir elevations would not rise above maximum reservoir elevations but would regularly fall below the minimum end-of-month elevation within the range of 8 to 45 feet. Due to the frequency and magnitude of the reduced reservoir elevation, cumulative conditions would be considered potentially significant and would increase the potential for increased exposure of cultural resources relative to the existing condition.	Potentially significant.	

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
CULTURAL RESOURCES (Section 3.10) (Continued)		
Water surface elevation at Shasta Reservoir (continued).		
Action Alternatives' Incremental Contribution to the Cumulative Condition. The hydrologic evaluation of the Action Alternatives' incremental contribution to the cumulative condition indicates that reductions from one to six feet below the minimum reservoir end-of-month elevations may occur. The timing, frequency, and magnitude of these end-of-month elevation reductions result in a potentially significant impact; therefore, CVP operations associated with implementation of an Action Alternative would result in a considerable contribution to the cumulative condition. Reclamation has initiated consultation and preparation of a Programmatic Agreement with SHPO and the Advisory Council on Historic Preservation. The purpose of the Programmatic Agreement would be to ensure compliance with Section 106, by ensuring development and implementation of measures to protect resources from the effects of exposure when reservoir levels go below historic minimum levels. It is expected that the terms of the agreement would require Reclamation to implement measures that result in mitigation of potential effects to levels considered less than significant by SHPO and the National Advisory Council on Historic Preservation.	Less than significant.	3.6-2: Develop and Implement Programmatic Agreement with SHPO Regarding Potential Indirect Impacts at Shasta Reservoir
Water surface elevation at Trinity Reservoir.		
Action Alternatives Compared to the Existing Condition. Hydrologic modeling results indicate that the Action Alternatives would not result in any significant difference in reservoir elevations compared to the existing condition.	Less than significant	None proposed.
Action Alternatives Compared to No Action/No Project Alternative (Future). The modeling results indicate that future Trinity Reservoir levels under the Action Alternatives would not result in a higher maximum elevation or a lower minimum elevation than No Action/No Project Alternative end-of-month levels.	Less than significant.	None proposed.
Cumulative Condition. The cumulative condition maximum water surface elevation would be similar to the existing condition. Minimum end-of-month levels would be lower than the existing condition in certain months but would not fall below the minimum end-of-month level simulated for the existing condition. The cumulative condition would not be expected to result in increased exposure of cultural resources.	Less than significant.	
Flows of the upper and lower Sacramento River.		
Action Alternatives Compared to the Existing Condition. Hydrologic modeling results indicate that the Action Alternatives would not result in any significant difference in river flows of the upper or lower Sacramento River compared to the existing condition.	Less than significant.	None proposed.
Action Alternatives Compared to No Action/No Project Alternative (Future). Hydrologic modeling indicates that maximum monthly mean river flows of the upper and lower Sacramento River would be similar under the Action Alternatives and No Action/No Project Alternative conditions.	Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
CULTURAL RESOURCES (Section 3.10) (Continued)		
Flows of the upper and lower Sacramento River (continued).		
Cumulative Condition. For the upper Sacramento River, under the cumulative condition, summer month increases in maximum monthly mean river flows would not be above peak river flows of the existing condition and the reduction of minimum monthly mean river flows would not be below the lowest river flows of the existing condition. Overall, the cumulative condition would not result in increased exposure or damage to cultural resources. Lower Sacramento River results indicate that the cumulative condition would result in maximum monthly mean river flows that are similar or lower than existing condition flows. Minimum river flows would potentially be reduced below existing condition minimum monthly mean flows, but no significant cultural resources would be expected to be affected within the lower stretch of the Sacramento River.	Less than significant.	
Water surface elevation at Oroville Reservoir.		
Action Alternatives Compared to the Existing Condition and No Action/No Project Alternative (Future). The Action Alternatives would not result in substantial changes in elevation at Oroville Reservoir relative to the existing condition or to the No Action/No Project Alternative (future). Any small changes that may occur would be considered to represent less-than-significant impacts upon cultural resources of Oroville Reservoir.	Less than significant.	None proposed.
Cumulative Condition. Compared to the existing condition, the cumulative condition would result in substantially lower end-of-month elevation for most months of the year. Long-term end-of-month elevation reductions for Oroville Reservoir would range from six to 18 feet, and, in individual years, reductions of up to 76 feet in end-of-month elevation would occur. Such reductions in reservoir elevation potentially could result in exposure or damage to known or unknown cultural resources within the reservoir.	Potentially significant.	
Action Alternatives' Incremental Contribution to the Cumulative Condition. No substantial changes in reservoir elevation would be anticipated under the cumulative condition relative to the future base. The increase in future SWP demands is the primary factor leading to cumulative effects. The Action Alternatives' incremental contribution to the cumulative condition would not be considerable.	Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
CULTURAL RESOURCES (Section 3.10) (Continued)		
Flows of the Feather River.		
Action Alternatives Compared to the Existing Condition and No Action/No Project Alternative (Future). The Action Alternatives would not result in substantial changes in flow in the Feather River relative to the existing condition or to the No Action/No Project Alternative (future) that would affect cultural resources. Any small changes that may occur would be considered to represent less-than-significant impacts upon cultural resources of the lower Feather River.	Less than significant.	None proposed.
Cumulative Condition. Compared to the existing condition, the cumulative condition would result in changes in flow ranging from a reduction of 5.7 percent in March to an increase of 36.4 percent increase in August. These flow fluctuations potentially could increase the exposure and damage to known or unknown cultural resources within the Feather River floodplain.	Potentially significant.	
Action Alternatives' Incremental Contribution to the Cumulative Condition. No substantial changes in river flows would be anticipated under the cumulative condition relative to the future base. The increase in future SWP demands is the primary factor leading to cumulative effects. The Action Alternatives' incremental contribution to the cumulative condition would not be considerable.	Less than significant.	None proposed.
POWER SUPPLY (Section 3.11)		
DIVERSION-RELATED IMPACTS Note: There are no facilities-related power supply impacts.		
No Action/No Project Alternative Compared to Existing Condition. The increased pump station diversion under the No Action/No Project Alternative would be less than evaluated for the Action Alternatives (see below). Based on the evaluation of modeling performed for the Action Alternatives, it is expected that the No Action/No Project Alternative would not result in significant effects on gross hydropower generation, gross hydropower dependable capacity or upon pumping energy requirements.	Less than significant.	None proposed.
Gross hydropower generation.		
Action Alternatives Compared to the Existing Condition. The impact on annual gross generation is estimated to average reduction by 8 gigawatthours (GWh), or less than 0.2 percent.	Less than significant.	None proposed.
Action Alternatives Compared to No Action/No Project (Future). Under future conditions, the effect of the Action Alternatives on CVP gross hydropower generation would be a reduction of up to 7 GWh, or a less than 0.2 percent loss of generation compared to the No Action/No Project Alternative.	Less than significant.	None proposed.
Cumulative Condition. Compared to the existing condition, the cumulative condition would result in an annual reduction of up to 356 GWh, representing a seven percent loss of hydropower generation. This would have significant economic results.	Significant.	

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
POWER SUPPLY (Section 3.11) (Continued)		
Gross hydropower generation (continued).		
Action Alternatives' Incremental Contribution to the Cumulative Condition. The assessment of the Action Alternative incremental contribution to the cumulative condition indicates up to an average annual reduction of 9 GWh, representing less than 0.2 percent of annual generation.	Less than significant	None proposed.
Gross hydropower dependable capacity.		
Action Alternatives Compared to the Existing Condition. Implementation of an Action Alternative would result in, at most, a less than one percent reduction in gross dependable capacity compared to the existing condition.	Less than significant.	None proposed.
Action Alternatives Compared to No Action/No Project (Future). Under future conditions, the effect of the Action Alternatives on gross hydropower dependable capacity would be reduced by up to two percent at most compared to the No Action/No Project Alternative.	Less than significant.	None proposed.
Cumulative Condition. Compared to the existing condition, cumulative conditions would result in a reduction of total dependable capacity of up to 24 percent (August). This would have significant results.	Significant.	
Action Alternatives' Incremental Contribution to the Cumulative Condition. The assessment of the Action Alternative incremental contribution to the cumulative condition indicates a very small contribution to the future condition with at most a less than one percent of the median and less than two percent reduction of total dependable capacity..	Less than significant.	None proposed.
Folsom and EID pumping energy requirements.		
Action Alternatives Compared to the Existing Condition. The Action Alternatives would result in lower Folsom Reservoir elevations creating the need for greater amounts of energy to pump water at the Folsom and EID pumping plants. Compared to the existing condition, under the Action Alternatives, the increased energy requirement would be 1.4 percent greater at Folsom and 0.1 percent greater at EID.	Less than significant.	None proposed.
Action Alternatives Compared to No Action/No Project (Future). The anticipated future increased energy requirements for the Action Alternatives compared to the No Action/No Project Alternative would be 0.7 percent at Folsom and less than 0.1 percent at EID.	Less than significant.	None proposed.
Cumulative Condition. Compared to the existing condition, the cumulative condition would result in increased energy requirements that double existing Folsom pumping plant needs and would be six times greater for the EID pumping plant needs. This would be significant.	Significant.	

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
POWER SUPPLY (Section 3.11) (Continued)		
Folsom and EID pumping energy requirements (continued).		
Action Alternatives' Incremental Contribution to the Cumulative Condition. The assessment of the Action Alternative incremental contribution to the cumulative condition indicates that increased energy requirements at Folsom, 1.8 percent, and at EID, 0.1 percent, would be relatively minor and would not represent a significant contribution to the cumulative condition.	Less than significant	None proposed.
Power at Oroville Reservoir.		
Action Alternatives Compared to the Existing Condition and the No Action/No Project Alternative (Future). The Action Alternatives would not result in substantial changes in elevation at Oroville Reservoir relative to the existing condition or to the No Action/No Project Alternative (future) condition. Any small changes that may occur would be considered to represent less-than-significant impacts upon power supply resources of Oroville Reservoir.	Less than significant.	None proposed.
Cumulative Condition. The cumulative condition would result in a reduction in the long-term average reduction in storage of up to 8.5 percent. The effects of SWP demands on hydropower dependable capacity and energy requirements for pumping at Oroville Reservoir are uncertain. Due to this uncertainty, potential power supply cumulative impacts would be considered potentially significant.	Potentially significant.	
Action Alternatives' Incremental Contribution to the Cumulative Condition. No substantial changes in reservoir elevation would be anticipated under the cumulative condition relative to the future base. The increase in future SWP demands is the primary factor leading to the cumulative effects. The Action Alternatives' incremental contribution to the cumulative condition would not be considerable.	Less than significant.	None proposed.
LAND USE (Section 3.12)		
FACILITIES-RELATED IMPACTS Note: There are no diversion-related land use impacts.		
Change in existing or planned land use designations resulting in incompatibility with local or regional characteristics or leading to displacement of homes or businesses.		
No Action/No Project Alternative. No change from existing condition.	Less than significant.	None proposed.
Action Alternatives. The types of land uses would not change although the intensity and level of activity would increase from existing or No Action/No Project Alternative conditions due to year-round, rather than seasonal operations of the water supply facilities and associated recreation-related influx of people. No homes or businesses would be displaced. Anticipated increased use of the project area would be consistent and compatible with local and regional characteristics.	Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
LAND USE (Section 3.12)		
Change in existing or planned land use designations resulting in incompatibility with local or regional characteristics or leading to displacement of homes or businesses (continued).		
Upstream Diversion Alternative. The same water supply utility-related activities as under the Proposed Project (above).	Less than significant.	None proposed.
Conflict with local or regional planning policies, goals, or objectives.		
No Action/No Project Alternative. Continued operation of the seasonal pump station would be in direct conflict with the State Attorney General's office direction to close the Auburn Dam bypass tunnel and would result in potential inconsistencies with Reclamation and CDPR long-range planning goals for the Auburn SRA.	Significant, unavoidable.	No feasible mitigation available under this alternative.
Action Alternatives. Development of the year-round pump station would not result in conflict or inconsistency with Reclamation policies governing land use at the project site. Closure of the bypass tunnel would be consistent with the State Attorney General Office's direction to Reclamation, as compared to the continued conflict that would occur under the No Action/No Project and Upstream Diversion Alternatives. Introduction of interim public river access sites would be consistent with state goals for the Auburn SRA.	Less than significant/potentially beneficial.	None proposed.
Upstream Diversion Alternative. Similar to the No Action/No Project Alternative, this alternative would be in direct conflict with the State Attorney General's office direction to close the Auburn Dam bypass tunnel and would result in potential inconsistencies with Reclamation and CDPR long-range planning goals for the Auburn SRA.	Significant, unavoidable.	No feasible mitigation available under this alternative.
Cumulative Facilities-Related Impacts		
The Proposed Project and other future actions, specifically potential future expansion of the Auburn pump station and potential increased recreation development within the canyon, would change the intensity of water supply utility and recreation uses in the area; no land use or zoning designation changes would be required or anticipated. These cumulative activities would be considered consistent with long-range planning goals and would not result in policy conflicts. Certain land ownership and responsibilities would have to be arranged and contracted between appropriate entities.	Less than significant/potentially beneficial.	

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
GEOLOGY AND SOILS (Section 3.13)		
FACILITIES-RELATED IMPACTS Note: There are no diversion-related geology and soils impacts.		
Slope stability and geologic substructure changes that affect human safety.		
No Action/No Project Alternative. Seasonal pump station installation and removal activities would not differ substantially or result in disturbance of previously undisturbed areas as compared to the existing condition.	Less than significant.	None proposed.
Action Alternatives. Construction would involve extensive grading, excavation, and blasting to develop sites for the pump station facilities and to restore the river channel. Ground surface modification would result in the temporary creation of potentially unstable slopes. Restoration of the river channel would be considered a potentially beneficial aspect of this alternative that would not take place under the No Action/No Project or Upstream Diversion alternatives.	Less than significant/potentially beneficial.	3.10-1: Minimize the Potential for Increased Erosion and Slope Instability During Project Construction.
Upstream Diversion Alternative. Existing unstable slopes would be temporarily disturbed and present additional localized geologic hazards as compared to the existing or No Action/No Project Alternative. Substantially less ground-disturbance would occur under this alternative compared to the Proposed Project. This alternative would not result in restoration of the river channel.	Less than significant.	3.10-1: Minimize the Potential for Increased Erosion and Slope Instability During Project Construction.
Increased public exposure or property damage due to geologic hazards.		
No Action/No Project Alternative. Public use of the river would continue to be restricted and no additional facilities would be constructed, as under the existing condition.	Less than significant.	None proposed.
Action Alternatives. Extensive earthwork would create temporary but potentially hazardous conditions as compared to the existing or No Action/No Project Alternative conditions. Public access in the project area would be limited to and directed away from active construction areas throughout the construction period, thereby minimizing exposure to temporarily unstable slope or ground surface conditions. Increased public use of and passage through the area would potentially increase exposure of the general public to existing geologic hazards (landslides and unstable slopes).	Construction: Less than significant. Public River Access: Less than significant.	None proposed.
Upstream Diversion Alternative. The potential for increased public exposure to geologic hazards is similar to the Proposed Project, although, because the river channel would not be restored, there would be less area disturbed/unstable during construction. Public access and passage through the project area would not be expected to increase as under the Proposed Project.	Less than significant.	None proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
GEOLOGY AND SOILS (Section 3.13) (Continued)		
Cumulative Facilities-Related Impacts		
All future planned projects involving grading, excavation or blasting within the North Fork American River canyon would have the potential to result in slope stability and/or related public safety concerns. Each of these activities/projects would be required develop and implement site-specific measures to stabilize slopes following construction and to ensure protection of public safety. Because the Action Alternatives and future actions would include such measures, there would not be a significant cumulative impact upon geology and soils resources.	Less than significant.	
TRANSPORTATION AND CIRCULATION (Section 3.14)		
FACILITIES-RELATED IMPACTS Note: There are no diversion-related transportation and circulation impacts.		
Increase in traffic levels on Interstate 80, Highway 49, Auburn-Folsom Road, Pacific Avenue, and Maidu Drive.		
No Action/No Project Alternative. Implementation of the No Action/No Project Alternative would not change the number of project-related trips made to the site or within the study area, compared to the existing condition.	Less than significant.	None proposed.
Action Alternatives. Maximum construction-related trip generation would result in up to 146 daily trips on local roadways for workers and supply deliveries, or 116 daily trips over the existing or No Action/No Project Alternative conditions. Construction-related trips could potentially conflict with residential and commercial vehicular, bus, or bicycle traffic on local roadways, contributing to more frequent congestion or safety hazards than would occur under the existing or No Action/No Project Alternative conditions. Operation/maintenance of the year-round pump station would generate only up to eight daily trips that would be easily accommodated on local roadways. This results in six more daily trips than under existing or No Action/No Project Alternative conditions. Action Alternatives. Use of the public river access sites would generate up to 214 recreation-related vehicle trips on a peak summer day resulting in a noticeable seasonal influx of traffic, as compared to the existing condition and the No Action/No Project or Upstream Diversion Alternatives which do not include development of these sites. Roadway capacity and LOS would not be impaired.	Construction: Less than significant. Operation and Maintenance: Less than significant. Proposed Project - Public River Access: Less than significant.	3.7-1: Develop and Implement a Construction Traffic Access Management Plan 3.7-2: Provide Information Regarding New Public River Access

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
TRANSPORTATION AND CIRCULATION (Section 3.14) (Continued)		
Cumulative Facilities-Related Impacts		
Construction at the project site may impact the local roadway system, and in combination with other local projects could interfere with established traffic patterns or cause a safety hazard. The Action Alternatives' incremental contribution to the cumulative condition could be potentially significant should the construction timeframes overlap. *Public River Access* - The seasonal influx of recreation traffic along Maidu Road would add to the anticipated cumulative increases in travel associated with residential developments. These increases would not exceed roadway capacity or adversely affect roadway LOS.	Construction: Less than significant. Public River Access: Less than significant.	No additional measures proposed.
AIR QUALITY (Section 3.15)		
FACILITIES-RELATED IMPACTS *Note: There are no diversion-related air quality impacts.*		
Increase in ozone precursor concentrations during project construction.		
No Action/No Project Alternative. Under the No Action/No Project Alternative, the ozone precursors and particulate matter generated during installation and removal of the seasonal pump station and maintenance trips to the project site would not be expected to change from the existing condition.	Less than significant.	None proposed.
Action Alternatives. Construction of the Action Alternatives would result in increased ozone precursor (ROG and NO_x) air pollutant emissions throughout the construction period at levels higher than those under the existing and No Action/No Project Alternative conditions. Proposed Project. Ozone precursor emissions were estimated as: ROG - 2,633 pounds per quarter NO_x - 26,711 pounds per quarter Upstream Diversion Alternative. Ozone precursor emissions were estimated as: ROG - 891.6 pounds per quarter NO_x - 6,121.7 pounds per quarter.	Proposed Project - Construction: ROG Emissions - Less than significant. NO_x Emissions - Potentially significant and unavoidable.	3.8-1: Minimize Ozone Precursor Emissions During Project Construction No mitigation measures are proposed for Action Alternatives operation or maintenance activities or for Proposed Project public river access.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
AIR QUALITY (Section 3.15)		
Increase in PM_{10} concentrations during project construction.		
Action Alternatives. Construction of the Action Alternatives would result in PM_{10} air pollutant emissions throughout the construction period at levels higher than those under the existing and No Action/No Project Alternative conditions. Proposed Project PM_{10} emissions were estimated as 2,117.5 pounds per quarter Upstream Diversion Alternative PM_{10} emissions were estimated as 557 pounds per quarter	Less than significant.	3.8-2: Minimize PM_{10} Emissions During Project Construction
Increase in vehicular emissions due to project operation and maintenance.		
No Action/No Project Alternative. No change in operation and maintenance trips.	Less than significant.	None proposed.
Action Alternatives. Year-round operation and maintenance of the pump station facilities would generate up to six additional trips to the project site. Under the Upstream Diversion Alternative, this represents a less-than-significant increase in vehicular air emissions.	Less than significant.	None proposed.
Proposed Project. The Proposed Project total vehicle trips include those due to public river access plus operations for a total of up to 214 trips on a peak area use day. Anticipated levels of air pollutant emissions would remain well below the local APCD thresholds of significance for ROG, NO_x, and PM_{10}.	Less than significant.	None proposed.
Exposure of sensitive receptors to significant amounts of air pollutants.		
Action Alternatives. With the exception of NOx emissions generated during construction of the Proposed Project, construction and operation emissions for the Action Alternatives would be below local APCD significance thresholds, although higher than the emissions associated with existing or No Action/No Project Alternative conditions.	Exposure to ROG and PM_{10}: Less than significant. Exposure to NO_x: Proposed Project - potentially significant and unavoidable. Upstream Diversion Alternative - less than significant.	3.8-1: Minimize Ozone Precursor Emissions During Project Construction 3.8-2: Minimize PM_{10} Emissions During Project Construction 3.8-3: Minimize Potential for Disturbance of Asbestos and Exposure of Construction Personnel or General Public During Project Construction
Cumulative Facilities-Related Impacts		
All local projects could affect air quality during construction and/or operation phases. Each project would be required to incorporate all feasible mitigation measures recommended or required by local APCDs, thereby minimizing air quality effects to the extent practicable. However, because future projects, similar to the Proposed Project, may not feasibly reduce all air quality emissions below APCD significance thresholds, the potential for significant cumulative air quality impacts exists.		

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
AIR QUALITY (Section 3.15) (Continued)		
Cumulative Facilities-Related Impacts (Continued)		
Proposed Project's Contribution to the Cumulative Condition. Because the further reduction of NO_x emissions through implementation of adaptive construction management activities cannot be quantified, it is uncertain whether these emissions can be reduced below the Placer County APCD's quarterly emissions significance threshold. This is considered a considerable contribution to potential cumulative air quality impacts.	Potentially significant and unavoidable.	No additional mitigation proposed.
NOISE (Section 3.16)		
FACILITIES-RELATED IMPACTS		
Note: There are no diversion-related noise impacts.		
Increase in ambient noise levels during construction and operation of the alternatives.		
No Action/No Project Alternative. Installation/removal of the seasonal pump station facilities results in short-term increases in ambient noise levels. These noise levels do not exceed local noise ordinances or CDPR standards. Operation of the seasonal pumps (all four pumps) would result in a potential noise level of up to 55 dB exceeding both the City of Auburn night noise levels (45 dB, 10:00 p.m. to 7:00 a.m.) and the Placer County noise standard (50 dB, all times) for residential land uses. Additionally, noise levels at the nearest recreation trail segments could be as high as 60 dB. Maintenance activities for the seasonal pump station would be similar to the existing condition and would not be expected to generate noise levels that exceed local noise standards.	Installation and Removal: Less than significant. Operation: Potentially significant and unavoidable. Maintenance: Less than significant.	Installation and Removal: None proposed. Operation: No feasible mitigation available for potentially significant operation noise level increases. Maintenance: None proposed.
Action Alternatives. Construction of the Action Alternatives would result in increased ambient noise levels throughout the construction period due to use of explosives, construction vehicle traffic, and high noise level-generating construction equipment potentially impacting local residents and recreationists (trails and Auburn Recreation District campground) compared to existing and No Action/No Project Alternative conditions. Operation of the pumps would potentially result in noise levels of up to 90 dBA at a distance of 10 feet resulting in potential exceedances of local noise standards without additional design considerations. Because up to two additional pumps would be operated under the Action Alternatives as compared to existing or No Action/No Project Alternative conditions (which already may exceed noise level standards), this is a potentially significant impact. Maintenance of the pump station facilities would not generate noise levels in excess of those that occur under the existing condition or those anticipated under the No Action/No Project Alternative condition.	Construction: Less than significant. Operation: Less than significant. Maintenance: Less than significant.	3.9-1: Minimize Noise During Project Construction 3.9-2: Minimize Operational Noise Levels by Enclosing Pumps

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
NOISE (Section 3.16) (Continued)		
Increase in ambient noise levels during construction and operation of the alternatives (continued).		
Proposed Project. Use of the public river access sites would generate additional recreation-related noise within the study area compared to the existing condition and to the No Action/No Project and Upstream Diversion alternatives which do not include development of such areas or uses in the study area.	Proposed Project - Public River Access: Less than significant.	3.9-3: Minimize Noise Levels Associated with Public Use of River Access Features
Cumulative Facilities-Related Impacts		
In the future, ambient noise levels near the pump station site and in adjacent neighborhoods likely would increase as a result of increased recreation activity and residential development in Auburn. These anticipated land use changes and associated noise would be consistent with the character of the area and would not be expected to be significant. It is assumed that individual projects would be subject to the same noise restrictions as the pump station alternatives (limits on timing of noisy activity) and, therefore, adequately mitigated to prevent cumulative impacts.	Less than significant.	
PUBLIC HEALTH AND WORKER SAFETY (Section 3.17)		
FACILITIES-RELATED IMPACTS *Note: There are no diversion-related public health and worker safety impacts.*		
No Action/No Project Alternative. There are no hazardous materials currently stored on site and the No Action/No Project Alternative would not substantially change either public health or worker safety conditions compared to existing practices for seasonal pump station installation/removal and operation/maintenance.	Less than significant.	None proposed.
Increased project construction personnel and public exposure to commercially available hazardous materials or explosives.		
Action Alternatives. During construction, use and storage of commercially-available materials (diesel fuel, gasoline, paint, solvents, etc.) that could be flammable, volatile, or possess other hazardous characteristics would be greater than under existing or No Action/No Project Alternative conditions, increasing project construction personnel and public exposure to related hazards. The storage locations and amount stored on site at a given time would not differ substantially between the Action Alternatives. Implementation of the environmental protection measures would minimize potentially significant adverse public health impacts associated with increased use of potentially hazardous materials at the project site.	Less than significant.	3.10-2: Minimize Potential for Increased Exposure to Hazardous Materials or Fire Risk During Project Construction

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
PUBLIC HEALTH AND WORKER SAFETY (Section 3.17) (Continued)		
Increased project construction personnel and public exposure to asbestos.		
Action Alternatives. Excavation and blasting activities under the Action Alternatives could release asbestos fibers, not released by earthwork activities associated with existing or No Action/No Project Alternative conditions. Proposed Project. A much larger amount of earthwork and blasting would be involved under the Proposed Project as compared to the Upstream Diversion Alternative. The Environmental Protection Plan construction management activities would be specific to the selected alternative. Implementation of the environmental protection measures would minimize potentially significant adverse public health impacts associated with increased exposure to asbestos fibers from blasting and earthwork activities.	Less than significant.	3.8-3: Minimize Potential for Disturbance of Asbestos and Exposure of Construction Personnel or General Public During Project Construction
Increased project construction personnel and public exposure to fire hazards.		
Action Alternatives. During construction, use and storage of commercially-available materials (diesel fuel, gasoline, paint, solvents, etc.) that could be flammable, volatile, or possess other hazardous characteristics would be greater than under existing or No Action/No Project Alternative conditions, exposing construction workers to related hazards. The storage locations and amount stored on site at a given time would not differ substantially between the Action Alternatives. Implementation of the environmental protection measures would minimize potentially significant adverse worker health impacts associated with increased exposure to hazardous and explosive materials during project construction. Proposed Project. Increased public use of the Auburn Dam and Oregon Bar areas at the site and of the North Fork American River from the confluence and downstream past the project areas introduces an increased fire risk associated with human activity in the canyon.	Less than significant.	3.10-2: Minimize Potential for Increased Exposure to Hazardous Materials or Fire Risk During Project Construction 3.10-4: Minimize the Risk of Public Exposure to Fire Hazards During Project Operations
Cumulative Facilities-Related Impacts		
Action Alternatives. Contribution to Facilities-related Cumulative Public Health and Worker Safety Conditions. Implementation of the selected alternative would require compliance with all local, state and federal regulations governing the transport, delivery, transport, use, storage, and accident response activities relative to the project to protect public health and worker safety. It is expected that regulatory agencies would require the same level of public health and worker safety protection of other planned/proposed projects in the study area thereby minimizing the potential for cumulative public health or worker safety effects.	Less than significant.	No additional measures proposed.

Table S-5 (Continued)
Summary of Impacts and Environmental Protection and Mitigation Measures

Impact Issue	Impact Significance	Environmental Protection and Mitigation Measures
OTHER IMPACT CONSIDERATIONS (Section 3.18)		
Indian Trust Assets. The Proposed Project or alternatives would not be expected to result in adverse impacts to ITAs.	Less than significant.	None proposed.
Essential Fish Habitat. Essential fish habitat (specifically, chinook salmon) within the regional study area exists on the lower American River from the mouth to Nimbus Dam; such habitat also exists on the Sacramento River and its tributaries from the Delta upstream to Keswick Reservoir. The potential for the alternatives to adversely effect such habitat would be determined during consultation with NMFS. Appropriate terms and conditions to prevent impacts upon essential fish habitat would be developed during the NMFS consultation.	Proposed Project or alternatives are not likely to adversely affect EFH for fall-run chinook salmon.	
Environmental Justice. No disproportionately high or adverse environmental or human health impacts on minority or low-income communities have been identified for this project.	Less than significant.	None proposed.
Irreversible and Irretrievable Use of Resources. Irreversible commitments of resources would include construction materials, labor, land area, and energy consumed during construction, operation and maintenance activity. *Upstream Diversion Alternative*. Up to 0.11 acre of wetlands would be permanently lost under this alternative. Wetland acreage would be mitigated/replaced according to terms of the Corps' consultation and permitting process.	Less than significant.	3.2-4: Restoration of Permanent Riparian Wetland and Pond Vegetation/ Habitat Loss
Short-term Uses of the Environment Versus Long-term Productivity. The increased reliability and availability of water supplies for PCWA would meet current and projected water demands, thus supporting economic viability within the project service area. The project would have potential short-term impacts to air quality, terrestrial vegetation and habitats, recreation, and noise levels, but would not be expected to alter the long-term productivity of the natural environment.	Less than significant.	None proposed.
Climate Change. While the long-term environmental consequences associated with climate change are speculative at best, the location and design specifications for the Action Alternatives are expected to withstand a range of climate events, such as increased river flows.	Less than significant.	None proposed.

AF	acre-feet
AFA	acre-feet annually
AFRP	Anadromous Fish Restoration Program
APCD	Air Pollution Control District
APE	Area of Potential Effect
Auburn SRA	Auburn State Recreation Area
BMPs	Best Management Practices
CAWC	California-American Water Company
CALTRANS	California Department of Transportation
CDFFP	California Department of Forestry and Fire Protection
CDFG	California Department of Fish and Game
CDPR	California Department of Parks and Recreation
CEQA	California Environmental Quality Act
cfs	cubic feet per second
Corps	U.S. Army Corps of Engineers
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
dB	decibel
dBA	A-weighted decibels
Delta	Sacramento-San Joaquin River Delta
DWR	California Department of Water Resources
EDCWA	El Dorado County Water Agency
EFH	Essential Fish Habitat
EID	El Dorado Irrigation District
EIS/EIR	Environmental Impact Statement/ Environmental Impact Report
EPA	Environmental Protection Agency
ESA	Endangered Species Act (federal)
ESU	Evolutionary Significant Unit
FERC	Federal Energy Regulatory Commission
GDPUD	Georgetown Divide Public Utility District
GWh	gigawatthours
Interior	U.S. Department of the Interior
ITAs	Indian Trust Assets
km	kilometer
LOS	level of service
M&I	municipal and industrial
MFP	Middle Fork Project
mgd	million gallons per day
MOA	Memorandum of Agreement
msl	mean sea level
NEPA	National Environmental Policy Act
NID	Nevada Irrigation District
NMFS	National Marine Fisheries Service
NO_X	nitrogen oxides
NWD	Northridge Water District
P.L.	Public Law
PCWA	Placer County Water Agency
PG&E	Pacific Gas and Electric Company
$PM_{2.5}$	particulate matter (up to 2.5 microns in size)
PM_{10}	particulate matter (up to 10 microns in size)
ppt	parts per thousand
Reclamation	U.S. Department of the Interior, Bureau of Reclamation
RM	River Mile
ROG	reactive organic gases
RWQCB	Regional Water Quality Control Board
SHPO	State Historic Preservation Office
SWP	State Water Project
SWRCB	State Water Resources Control Board
USFWS	U.S. Fish and Wildlife Service
VELB	valley elderberry longhorn beetle
WTP	water treatment plant
WWTP	wastewater treatment plant
WWTRF	wastewater treatment and reclamation facility
X2	2 ppt isohaline in Delta