3.5.1 Affected Environment

This section describes the project area for water resources, including surface water, groundwater, and water quality.

Figure 3.5-1 shows Folsom Lake and the hydrologic features in the region. Folsom Dam Road runs across the crest of Folsom Dam, located at the southwest edge of Folsom Lake. Folsom Lake is located within the approximately 2,100-square-mile American River watershed and impounds runoff from approximately 1,875 square miles (Wallace, Roberts and Todd LLC 2003). The American River watershed stretches from central Sierra Nevada down to the Sacramento River. Snowmelt accounts for approximately 40 percent of the runoff from the watershed, and precipitation accounts for the rest (SJWD 2004).

The average annual rainfall at Folsom Lake is 23.9 inches, based on 38 years of precipitation data recorded at the National Climatic Data Center Folsom Dam station from 1955 to 1993 (WRCC 2004).

3.5.1.1 Surface Water

Water Supply

Folsom Lake provides flood control and storage for many uses including irrigation, domestic, municipal and industrial supply, electrical power generation, and environmental uses. The total storage to elevation 466 feet is 1,010,000 acre-feet (Reclamation 2004); however, the average monthly storage ranges from approximately 472,900 acre-feet in November to 838,100 acre-feet in June. Folsom Lake is one of the major facilities operated by Reclamation as part of the Central Valley Project. It accounts for approximately 10 percent of the total storage in the major Central Valley Project system facilities.

Water supplies from Folsom Dam currently meet the majority of water demands from the City of Roseville, the City of Folsom, the San Juan Water District (SJWD), and Folsom Prison. SJWD provides water to Citrus Heights Water District, Fair Oaks Water District, Orangevale Water Company, and the City of Folsom. Other entities using Folsom Lake supplies include the Placer County Water Agency and El Dorado Irrigation District.

Water Quality

The water entering Folsom Lake from the American River watershed is of extremely high quality. Monitoring of the region has found that the surface water quality rarely exceeds State of California water quality objectives for temperature, bacteria, dissolved oxygen, pH, oil and grease, total dissolved solids, and turbidity (Wallace, Roberts and Todd, LLC 2003). The City of Roseville performed a source water assessment in 2002 (City of Roseville 2003) for Folsom Lake. The source assessment, which is used to evaluate drinking water sources to determine which contamination-causing human activities the source is most vulnerable to, determined the following: "The source is considered most vulnerable to the following activities associated with contaminants detected in the water supply: Folsom Lake State Recreation Area facilities (marina, restrooms, recreational areas, parking lots, and storm drains) and residential sewer and septic systems. The source is considered most vulnerable to the following activities not associated with any detected contaminants: illegal activities and dumping, fertilizer, pesticide, and herbicide application, and high-density housing developments."

A source water assessment was performed in 2003 for the American River downstream of Folsom Dam (CWD 2004), which determined that the source "is considered most vulnerable to contamination from sewer system spills, body contact recreation, urban runoff and discharge of regulated and unregulated contaminants. The contaminants to which the surface water sources are considered most vulnerable include the following: perchlorate, nitrosodimethylamine and volatile organic chemicals discharged into the American River by the Aerojet General Corporation."

The lower American River from Nimbus Dam to the Sacramento River is on the 2002 Clean Water Act Section 303(d) list of impaired water bodies for mercury due to elevated fish tissue concentrations (SRCSD, City of Sacramento, and County of Sacramento 2003). However, monthly monitoring from 1992 to 2003 has shown that concentrations of trace metals meet applicable regulatory criteria at least 99.5 percent of the time (SRCSD, City of Sacramento, and County of Sacramento 2003).

3.5.1.2 Groundwater

Folsom Lake is located at the eastern edge of the Sacramento Valley groundwater basin and its North American and South American subbasins. The North American Subbasin covers the area between the Bear River to the north, the American River to the south, the Feather and Sacramento rivers to the west, and the Sierra Nevada to the east. The South American Subbasin covers the area between the American River to the north, the Cosumnes and Mokelumne rivers to the south, the Sacramento River to the west, and the Sierra Nevada to the east. Groundwater supplies in the fractured rock of the Sierra Nevada foothills are highly variable, so no major groundwater basins are defined east of Folsom Lake (DWR 2003).

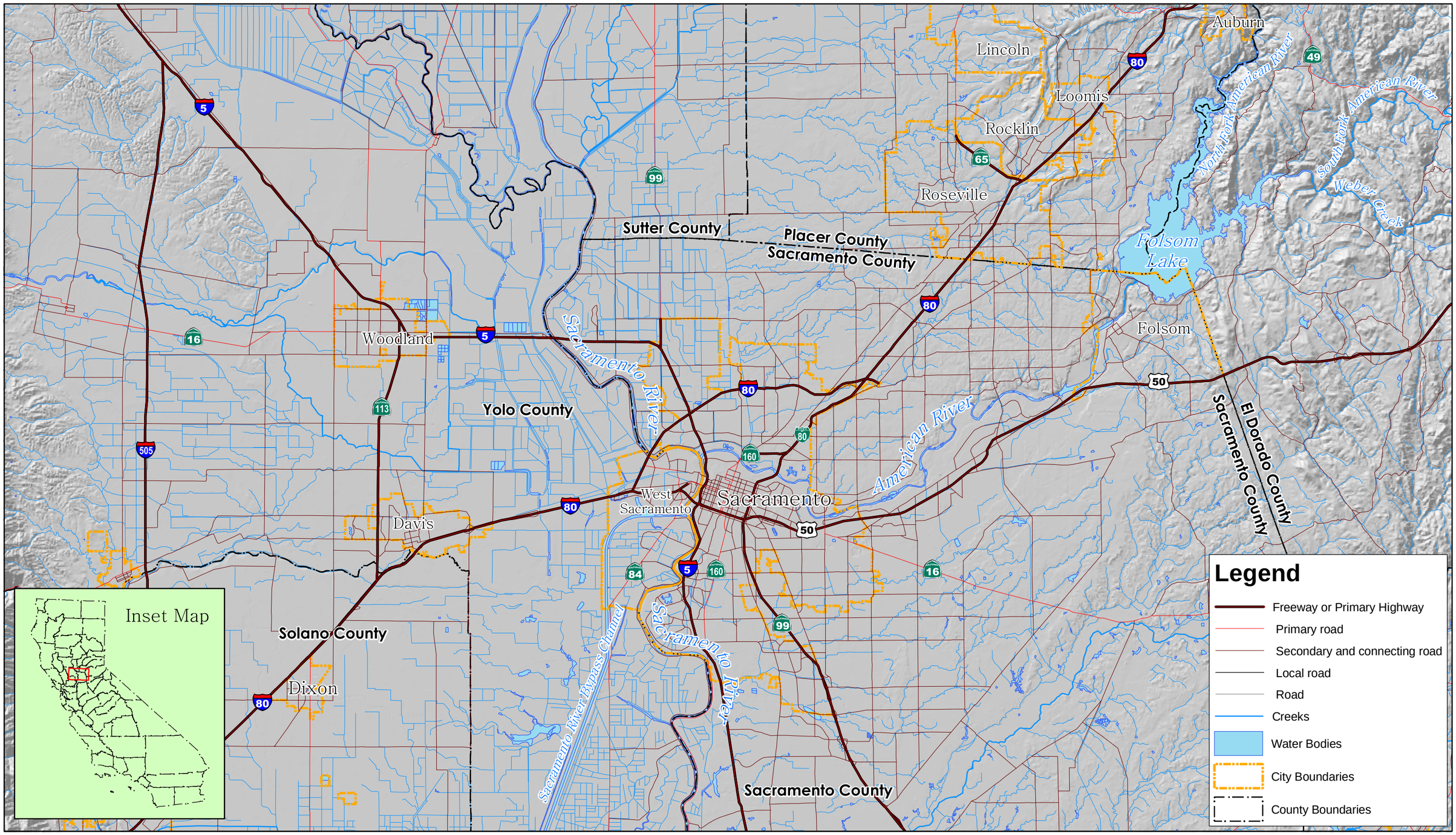
Water Supply

A number of water districts rely on groundwater pumped from the North and South American subbasins. Based on values for 1990 in the North American Subbasin, the California Department of Water Resources (DWR) estimated that 109,900 acre-feet of groundwater were pumped for urban use and 289,100 acre-feet were pumped for agricultural use. The natural recharge was estimated to be 83,800 acre-feet, and the applied water recharge was estimated to be 29,800 acre-feet. The storage capacity within the 351,000-acre basin is estimated to be 4.9 million acre-feet (DWR 2003).

In the South American Subbasin, values represent an average water budget from 1970 to 1995. An average of 68,058 acre-feet was estimated for urban supply and 162,954 acre-feet for agricultural use. Net subsurface outflow was estimated to be 29,676 acre-feet per year. Natural and applied water recharge was estimated to total 257,168 acre-feet. The storage capacity calculated using an area of 243,200 acres was 4.8 million acre-feet (DWR 2003).

Water Quality

Much of the North American Subbasin contains groundwater of good quality. However, there are portions where the quality is marginal, and three sites within the subbasin are contaminated.



	Folsom Dam Road Restriction EIS 18600807	Folsom Dam Regional Hydrography	Figure 3.5-1

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Some locations have shown elevated levels of total dissolved solids, chloride, sodium, bicarbonate, boron, fluoride, nitrate, iron manganese, and arsenic (DWR 2003). The area along the Sacramento River from the Sacramento International Airport to the Bear River contains high total dissolved solids levels (DWR 2003).

The largest known contaminated sites include the former McClellan Air Force Base, Union Pacific Railroad Rail Yard in Roseville, and the Aerojet Superfund Site. The contaminant plume from the Aerojet site spread under the American River from south to north. Other small areas of contamination exist throughout the basin (DWR 2003).

The South American Subbasin also has areas that are contaminated. The most notable include the Aerojet Superfund Site, the Mather Field Superfund Site, the Sacramento Army Depot Superfund Site, Kiefer Boulevard Landfill, an abandoned PG&E site near Old Sacramento, and the Southern Pacific and Union Pacific Rail Yards in downtown Sacramento (DWR 2003). Water quality was monitored in 144 to 170 wells from 1994 to 2000. The number of wells with concentrations above the maximum contaminant level for national primary drinking water regulations included 2 for inorganics, 1 for radiological, 1 for nitrates, and 8 for volatile organic compounds and semivolatile organic compounds. Forty-six wells were above the inorganics maximum contaminant level for secondary drinking water regulations (DWR 2003).

3.5.2 Environmental Consequences

This section addresses potential impacts to surface and groundwater resources and water quality.

Evaluation Criteria

Impacts to water resources were assessed for each of the four alternatives considered. The first step in the evaluation was to determine the nature and magnitude of the impact. In order to characterize the impacts, changes that would occur from the implementation of each alternative were identified. Then, the changes to water resources were reviewed to determine whether they would: (1) violate any water quality standards or otherwise substantially degrade water quality; (2) deplete surface water supplies; (3) deplete or interfere with groundwater recharge; (4) alter the existing drainage pattern of the area; (5) contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of pollutant runoff; (6) or expose people or structures to a risk of loss, injury, or death.

Once the impacts were characterized, each of the three action alternatives (Preferred Alternative—Restricted Access Alternative 2, Restricted Access Alternative 3, and Long-Term Closure Alternative) was compared against the No Action Alternative, or project baseline, to determine the relative impact of action alternatives. These impacts are described below.

Floodplain Encroachment – Executive Order 11988

Executive Order 11988, issued in 1977, requires Federal agencies to consider and avoid adverse impacts associated with the occupancy and modification of floodplains or floodplain development. Requirements of this Executive Order include responsibility to consider whether an action will occur within a floodplain and whether it could significantly affect the quality of the human and natural environment related to floodplain impacts. Typically, this requirement is considered when an action may be constructed within a floodplain area and may adversely or significantly alter the course or extent of an inundation area. The proposed alternatives would not directly impact (or encroach within) a floodplain. The No Action Alternative and the Long-Term

Closure Alternative do not involve construction of any new facilities. The Preferred Alternative—Restricted Access Alternative 2 and Restricted Access Alternative 3 would involve the addition of security and inspection facilities along the existing Folsom Dam Road, on top of the dam that currently controls flooding downstream of Folsom. As discussed in previous sections, Reclamation's interim closure of Folsom Dam Road was taken in response to the potential risk of dam failure associated with uncontrolled access to the facility. The No Action Alternative (unrestricted access to Folsom Dam Road) is considered inconsistent with Executive Order 11988, due to the potentially greater risk for loss of the dam. The Long-Term Closure Alternative (continued closure of Folsom Dam Road) and Preferred Alternative—Restricted Access Alternative 2 and Restricted Access Alternative 3 (involving restricted access with full inspection of vehicles using the road) are considered consistent with Executive Order 11988.

3.5.2.1 No Action Alternative

This alternative would return traffic circulation patterns to those similar to pre-February 2003 conditions. However, continued growth in the City of Folsom is expected to contribute to some increases in traffic under No Action conditions. No new construction, paved areas, or other measurable changes would be necessary along Folsom Dam Road. Consequently, this alternative would not result in any change in surface water runoff, either in terms of quantity or quality.

An increased risk of dam failure is associated with the No Action Alternative. A dam failure would, if it occurred, lead to widespread impacts to water districts relying on water supplies from Folsom Lake or the American River. A potential dam failure would also present a risk to people and structures in Folsom and over a larger area of Sacramento County.

3.5.2.2 Preferred Alternative—Restricted Access Alternative 2

The Preferred Alternative—Restricted Access Alternative 2 would provide public access to Folsom Dam Road with vehicle prescreening and security facilities such as inspection stations and inspection lanes, as described in Section 2.2.2. Temporary impacts to water quality could take place during construction of the inspection stations at each end of the dam. Construction activities such as grading and excavation could potentially cause temporary increases in erosion during storm events.

To control access across the dam, inspection facilities would require new paved areas and drainage collection. Potential paved surfaces added could range from several hundred square feet of pavement to thousands of square feet with multiple inspection stations and access lanes. The size and configuration of the inspection facilities would depend on the number of inspection lanes and stations needed to process maximum feasible traffic volumes and maintain a security level that is acceptable to Reclamation (see Table 2-1, footnote 6; also see Section 2.2.2). The configuration of inspection facilities would be designed following the selection of an alternative in the Record of Decision. Storm water runoff would increase incrementally, and this runoff would include residual pollutant runoff, similar to any paved surface area.

While some immediate construction-related increases in erosion and storm water runoff would result from the construction of new inspection facilities on Folsom Dam Road, the changes to water quality would be small. Any differences between the effects of the Preferred Alternative—Restricted Access Alternative 2 and Restricted Access Alternative 3 would be due to differences in inspection facility configuration needed to process maximum feasible traffic volumes during

the operating periods of each alternative (two 3-hour periods and two 2-hour periods per weekday, respectively).

Some indirect impacts to water quality would be expected with the increased vehicle miles traveled under the Preferred Alternative—Restricted Access Alternative 2, discussed in Sections 3.1 and 3.2. Surface water runoff from roads is known to contain some pollutants associated with deposition of vehicular and other emissions in the air and from the cars themselves (e.g., motor oil and residual tire wear). These effects are already occurring wherever there is automobile traffic. The Preferred Alternative—Restricted Access Alternative 2 shows a negligible increase in total vehicle miles traveled in the Folsom area compared to the No Action Alternative (see Table 3.1-10). The implementation of the Preferred Alternative—Restricted Access Alternative 2 would not substantially affect water quality.

3.5.2.3 Restricted Access Alternative 3

Restricted Access Alternative 3 would also provide public access to Folsom Dam Road with vehicle prescreening and security facilities. As with the Preferred Alternative—Restricted Access Alternative 2, ~~T~~temporary impacts to water quality and increases in erosion could take place during construction of the inspection stations, and the amount of paved surface area could increase. The size and configuration of the inspection facilities would depend on the number of inspection lanes and stations, which would only be designed if this alternative was selected in the Record of Decision. Storm water runoff would increase incrementally, and this runoff would include residual pollutant runoff, similar to any paved surface area.

As with the Preferred Alternative—Restricted Access Alternative 2, changes to water quality would be small. The implementation of Restricted Access Alternative 3 would not substantially affect water quality, as compared to the potential effects of a dam failure under the No Action Alternative.

3.5.2.4 Long-Term Closure Alternative

Long-term continuation of the closure of Folsom Dam Road would not have any direct impacts to water quality. No construction, land clearing, or related activities would be required, and there would be no increased risk of erosion, discharge, or release to water resources.

An incremental increase in indirect source pollutants due to an increase in vehicle miles traveled would result under the Long-Term Closure Alternative. The Long-Term Closure Alternative shows an increase in total vehicle miles traveled in the Folsom area with respect to the No Action Alternative, the Preferred Alternative—Restricted Access Alternative 2, and Restricted Access Alternative 3 (Table 3.1-10). However, no new roads or paved surface area changes would occur, which would be the largest contributor to non-point source water runoff from paved or hard surface areas. Therefore, no substantial changes to water quality or availability would result from the Long-Term Closure Alternative. Relative to the No Action Alternative, the Long-Term Closure Alternative would significantly reduce the risk of potential effects to water resources from dam failure.

3.5.3 Mitigation

3.5.3.1 No Action Alternative

No immediate impacts would result from the No Action Alternative, and no mitigation would be required. However, in the event of a dam failure, mitigation measures include development of contingency plans and alternative water supplies. However, this could lead to further environmental impacts, and development of a reliable alternative source may not be feasible. Aid would be provided through local, State, and Federal agencies including the California Office of Emergency Services and the Federal Emergency Management Agency.

3.5.3.2 Preferred Alternative—Restricted Access Alternative 2

Measures to minimize the negative effects could include limiting construction to the dry season and implementing best management practices for construction waste handling and disposal and for control of sedimentation and erosion.

Storm water control and collection facilities may be required and could be included, if needed, under the Preferred Alternative—Restricted Access Alternative 2.

3.5.3.3 Restricted Access Alternative 3

The same mitigation described for the Preferred Alternative—Restricted Access Alternative 2 would apply to this alternative.

3.5.3.4 Long-Term Closure Alternative

No adverse impacts are expected to result based on the analysis of the Long-Term Closure Alternative. Therefore, no mitigation is recommended.

3.6.1 Affected Environment

This section describes the environmental setting for the Folsom Dam Road Access Restriction and the biological resources with the potential to occur in the area immediately surrounding Folsom Dam Road. Folsom Dam Road is currently closed from Folsom-Auburn Road to East Natoma Street. For the purposes of the discussion of biological resources, the area of closure is referred to as the project area. Information on biological resources presented in this section is based on a general site reconnaissance within the vicinity of Folsom Dam Road and a review of pertinent literature and databases that include information on the biological resources with potential to occur in the project area. Downstream of Folsom Reservoir, including the Sacramento Valley area, some of the same types of habitats may be found, although the resources tend to be dominated by species typically found in more disturbed areas.

3.6.1.1 Habitat Types

Folsom Dam Road Vicinity

Common habitat types in the vicinity of the Folsom Dam and Folsom Dam Road project area include annual grasslands, blue oak woodland, ruderal herbaceous, mixed forest, and urban landscaping/developed areas (Jones & Stokes 1996). Brief descriptions of these habitats are provided below.

Annual Grassland. Non-native grasses introduced during European settlement of the Central Valley dominate the annual grasslands in the project area. Typical species include wild oat (*Avena fatua*), slender wild oat (*Avena barbata*), red brome (*Bromus rubens*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), yellow star-thistle (*Centaurea solstitialis*), long-beaked filaree (*Erodium botrys*), and foxtail barley (*Hordeum murinum* spp. *leporinum*).

Common bird species such as the western meadowlark (*Sturnella neglecta*), killdeer (*Charadrius vociferus*), and western kingbird (*Tyrannus verticalis*) utilize grassland habitat. Other wildlife species such as jackrabbit (*Lepus californicus)* and coyote (*Canis latrans*) are also typically found in grassland habitat. Raptors and small mammals typically forage in grassland habitat.

Blue Oak Woodland. Oak woodlands exist in the project area and are dominated by blue oak (*Quercus douglasii*). Other species include interior live oak (*Quercus wislizenii*), valley oak (*Quercus lobata*), buckeye (*Aesculus californicus*), and gray pine (*Pinus sabiniana*). The oak woodlands in this area are primarily savannas characterized by open canopies with understories of annual grassland species.

Wildlife species such as red-tailed hawk (*Buteo jamaicensis*), house finch (*Carpodacus mexicanus*), western kingbird, and other migrants utilize oak woodlands; raccoon (*Procyon lotor*) often use trees for den sites and foraging.

Ruderal Herbaceous. Ruderal vegetation (vegetation that has grown in previously disturbed areas) is found along the area's roadways and where soil has been disturbed. Non-native species found in disturbed areas include black mustard (*Brassica nigra*), bur clover (*Medicago polymorpha*), yellow star-thistle (*Centaurea solstitialis*), Italian thistle (*Carduus pycnocephalus),* and milk thistle (*Silybum marianum*). Small birds and mammals may forage in ruderal habitat.

Mixed Forest. Mixed forest communities are structurally diverse with an overstory of native trees and an understory that supports shrubs, annual grasses, and forbs. Small pockets of mixed forest have been mapped near Folsom Dam Road (Jones & Stokes 1996). These forested areas can include some blue elderberry (*Sambucus mexicana*) shrubs, which are the host plant for the threatened valley elderberry longhorn beetle. Raptors such as red-tailed hawk and other birds utilize mixed forest. Other wildlife such as deer, squirrel, skunk, raccoon, and opossum may also be present.

Riparian. Riparian areas occur along the waterways that lead into Folsom Reservoir and other downstream waterways, including within the Sacramento Valley. Riparian habitat is characterized as forest, scrub, and freshwater marsh.

Riparian forest has a dense overstory of trees and small shrubs. Typical species associated with this habitat type include California box elder (*Acer negundo* var. *californicum*), Fremont cottonwood (*Populus fremontii* ssp. *Fremontii*), valley oak (*Quercus lobata*), Oregon ash (*Fraxinus latifolia*), Himalayan blackberry (*Rubus discolor*), California blackberry *Rubus ursinus*), and willows (*Salix* spp.). Blue elderberry (*Sambucus mexicana*), the host plant of the valley elderberry longhorn beetle, is associated with the riparian forest habitat.

Forested riparian habitats located in the Central Valley of California typically provide food; water migration and dispersal corridors; and escape, nesting and thermal cover for an abundance of terrestrial wildlife. Typical wildlife species found in these habitats include the gray fox, black-tailed deer, bobcat, raccoon, dusky-footed woodrat, Western small-footed myotis bat, northern flicker, Cooper's hawk, yellow-breasted chat, spotted towhee, black-headed grosbeak, common garter snake, and various amphibians such as the Pacific tree frog.

Riparian scrub wetlands are associated with smaller streams in the project and regional area. This wetland habitat type is typically dominated by hydrophytic willows that require a perennial source of soil moisture. Typical plant species include sandbar willow (*Salix exigua*), red willow (*Salix laevigata*), buttonwillow (*Cephalanthus occidentalis*), Himalayan blackberry, and immature Fremont cottonwood. Bird species typically found in riparian scrub habitat include California quail (*Callipepla californica*), American robin (*Turdud migratuorius*), house wren (*Troglodytes aedon*), and red-winged blackbird (*Agelaius phoeniceus*). Resident amphibian species often utilize riparian corridors for foraging and cover. Riparian scrub often provides needed cover for these species in areas dominated by ruderal vegetation, short grassland, or agricultural fields.

Freshwater marsh wetlands occur in the margins of streams and irrigation channels where water is present during all or most of the dry season. Many of the sites where freshwater marsh habitat is present have enhanced flows from farm irrigation, treated municipal wastewater, or residential irrigation. Typical plant species include emergent species such as tule (*Scirpus acutus, S. americanus*) or cattail (*Typha latifolia*), and floating species such as yellow waterweed (*Ludwigia peploides*) or water smartweed (*Polygonum amphibium*).

Urban Landscaping/Developed. Developed areas and associated urban habitat in the landscaped areas (trees, shrubs, and maintained grassy areas) are present at the west end of the project area and in surrounding areas. Resident and migratory hawks, owls, songbirds, and woodpeckers have the potential to use landscaped areas for nesting, food, and cover. Larger wildlife such as deer, squirrel, skunk, raccoon, and opossum may also be present.

Sacramento–San Joaquin Delta

The Sacramento–San Joaquin Delta (the Delta) includes the Sacramento River as it flows down to Suisun Bay. Delta habitats include freshwater marsh (described under "Riparian," above) and other marsh types as well as vernal pools.

Tidal Marsh. Tidal marsh habitat occupies the upper intertidal zone that is saturated only during high tides. This zone is found between mean sea level and the mean high tide elevation. Typical plant species include pickleweed (*Salicornia virginica*), jaumea (*Jaumea carnosa*), alkali bulrush (*Scirpus robustus*), and arrowgrass (*Triglochin maritima*). Tidal marshes provide potential habitat for several special-status species including the salt marsh harvest mouse (*Reithrodontomys raviventris*), California black rail (*Laterallus jamaicensis coturniculus*), and soft bird's beak (*Cordylanthus mollis* ssp. *mollis*).

Seasonal Alkali Marsh. Seasonal alkali marsh habitat occupies low-elevation sites that may have once had tidal marsh habitat but are isolated from natural tidal hydrology by levees, road embankments, or other obstructions. Salinity levels are higher in this habitat because of the lack of tidal inundation during the dry season. Typical plant species are similar to tidal marsh habitats but include some species such as western sea-purslane (*Sesuvium verrucosum*), alkali weed (*Cressa truxilensis*), and brass buttons (*Cotula coronopifolia*) that are less common in tidal marsh habitats because of frequent inundation. Special-status wildlife species typical of tidal marshes would also potentially occur in this habitat type, although it is not likely to provide equal forage or cover opportunities.

Seasonal Marsh. Seasonal marsh habitats are transitional between perennial wetlands and vernal pools. Most of the seasonal wetlands in the Delta are associated with low-gradient swales and drainage features that capture surface runoff and remain saturated or inundated for several months of the year. These wetlands tend to retain water longer than vernal pools but are often desiccated during the summer. Typical plant species include spikerush (*Eleocharis macrostachya*), flowering quillwort (*Lilaea scilloides*), brass buttons (*Cotula coronopifolia*), and rabbit's-foot grass (*Polypogon monspeliensis*). Mallard ducks (*Anas platyrhynchos*), common snipe (*Gallinago gallinago*), great blue heron (*Ardea herodias*), and red-winged blackbird (*Agelaius phoeniceus*) typically take advantage of seasonal wetlands for foraging, loafing, and breeding. These wetlands also provide breeding habitat for various amphibian species.

Vernal Pools. Vernal pools are shallow topographic depressions or swales on soils that have an impermeable layer. Water ponds in the depression when a perched water table forms above the impermeable layer during the wet season. Brief, seasonal inundation and characteristic hydrophytic plants distinguish vernal pool habitat from seasonal marsh habitat. Obligate wetland species such as slender popcornflower (*Plagiobothrys stipitatus* var. *micranthus*), downingia (*Downingia concolor, D. insignis, D. ornatissima, D. bicornuta,* and *D. pulchella*), California semaphore grass (*Pleuropogon californicus*), and goldfields (*Lasthenia glaberrima, L. chrysantha, L. platycarpa,* and *L. conjugens*) are typical of vernal pool habitats.

Vernal pools are habitat for several special-status species known to occur in the Delta. This habitat type may be occupied by two federally listed branchiopods, vernal pool fairy shrimp (*Branchinecta lynchi*) (federally listed as threatened) and vernal pool tadpole shrimp (*Lepidurus packardi*) (federally listed as endangered). Other special-status species observed in vernal pool habitats in the Delta include California linderiella (*Linderiella occidentalis*) and midvalley fairy shrimp (*Branchinecta mesovallensis*). Birds observed foraging in vernal pools in the Delta

include killdeer, greater yellowlegs, and cliff swallow. Pacific treefrogs and a wide variety of invertebrates, including copepods (Copepoda), seed shrimp (Ostracoda), water fleas (Cladocera), California clam shrimp (*Cyzicus californicus*) and aquatic snails (Gastropoda), have been observed in vernal pool habitats in the Delta.

3.6.1.2 Special-Status Species

For the purposes of this discussion, special-status species include those with a moderate or greater potential to occur in the project area. Although the Folsom Dam Road access restriction is a Federal action only (no State approval or permit is necessary), both Federal and State species of concern are included for purposes of this assessment, based on their potential status as: (1) listed as threatened or endangered under either the Federal or California Endangered Species Acts; (2) candidates for either Federal or State listing; (3) species afforded protection under the California Fish and Game Code; (4) Federal and California Department Fish and Game (CDFG) "Species of Special Concern"; (5) CDFG "Species of Special Concern highest and second priority lists; and (6) California Native Plant Society (CNPS) List 1-3 plants.

Table C-1 in Appendix C lists the special-status plant and wildlife species that occur or have the potential to occur in the Folsom and Sacramento regions. The table lists species from the U.S. Fish and Wildlife Service (USFWS) species list and the California Natural Diversity Data Base (CNDDB) within a 2-mile radius of Folsom and a 10-mile radius of Sacramento. The table provides both scientific and common names, legal status, description of habitat preference, and the recorded or potential occurrence in the project area. Many of the special-status species are not expected to occur because the habitat elements they require either were never present or are no longer found in the grasslands and woodlands in the project area. Special-status species known to occur, or with potential habitat present, that could potentially be affected by the Folsom Dam Road Access Restriction are discussed below.

Plants

Special-status plant species with the potential to occur in the project area are summarized below. No special-status plant species have been reported in the project area (CNDDB 2004; Jones & Stokes 1996).

Sacramento Orcutt Grass. Sacramento orcutt grass (*Orcuttia viscida*) is a federally and State listed endangered species. *Orcuttia viscida* has a narrow population range, occurring within a 350 square kilometer (km) (135 square mile) area in eastern Sacramento County. Only 40 km (18 miles) separates the northernmost from the southernmost population. Two of the nine known populations have been extirpated (Jepson 1998).

Slender Orcutt Grass. Slender orcutt grass (*Orcuttia tenuis*) is listed as a federally threatened and State endangered species. *Orcuttia tenuis* is restricted to northern California, with two populations occurring in Lake County, 1 in Lassen County, 2 in Plumas County, 2 in Sacramento County, 19 (including one translocated) in Shasta County, 2 in Siskiyou County, and 32 in Tehama County (Jepson 1998).

Bogg's Lake Hedge-Hyssop. Bogg's Lake hedge-hyssop (*Gratiola heterosepala*) has no Federal list status but it is protected as endangered under the California Endangered Species Act. This species is a tiny member of the snapdragon family (Scrophulariaceae). Bogg's Lake hedge-hyssop grows in vernal pools and along lake margins. It is widely distributed in Central and

Northern California and is also known from one occurrence in Oregon. Agriculture, development, grazing, trampling, and vehicles threaten the known occurrences of this species (Jepson 1998).

Wildlife

Special-status wildlife species with the potential to occur in the project area are listed in Appendix C, Table C-1. Brief descriptions of selected species are provided below. No special-status wildlife species have been reported in the project area (CNDDB 2004; Jones & Stokes 1996).

Listed Branchiopods

Vernal pool fairy shrimp and tadpole shrimp are California endemics that live in temporary pools that fill with rainwater during the wet season. The branchiopods lie dormant in the dry season and hatch from egg-like cysts when ponding occurs. Branchiopods can complete their life cycles in as few as 10 to 12 days to take advantage of short-lived vernal pools, swales, or puddles. These species also inhabit degraded areas including artificial depressions, tire tracks, and other sites that contain water only during the winter (USFWS 2002).

USFWS has proposed to designate critical habitat for four vernal pool branchiopods and 11 vernal pool plants in California and southern Oregon (USFWS 2002). No critical habitat has been designated in the project area although a potential exists for its occurrence. The following listed branchiopod species have the potential to occur in the study area (CNDDB 2004).

Vernal Pool Tadpole Shrimp. The vernal pool tadpole shrimp (*Lepidurus packardi*) is a federally listed endangered species. This species is associated with low-alkalinity seasonal pools found in unplowed grasslands throughout the northern and eastern portions of the Central Valley (USFWS 2002). Suitable pools and swales are generally underlain by hardpan or sandstone. Vernal pool tadpole shrimp have been known to occur in the regional and project area (CNDDB 2004).

Vernal Pool Fairy Shrimp. The vernal pool fairy shrimp (*Branchinecta lynchi*) is a federally listed threatened species. This species is widely distributed in vernal pools and swales throughout the grasslands of California, from Shasta County south to Riverside County (USFWS 2002). Vernal pool fairy shrimp have been known to occur in the regional and project area (CNDDB 2004).

Listed Wildlife

Valley Elderberry Longhorn Beetle. The valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) is federally listed as threatened. This species has no State status. The valley elderberry longhorn beetle is endemic to the Central Valley region of California and is dependent on a single host plant, the blue elderberry shrub (*Sambucus mexicana*). The shrubs are generally found in riparian areas and nearby uplands throughout the Central Valley, but suitable habitat is so fragmented that the valley elderberry longhorn beetle has been restricted to a few localized locations (BioSystems 1994). The majority of these locations are in the Sacramento Valley and are associated with the larger river floodplains.

Giant Garter Snake. The giant garter snake (*Thamnophis gigas*) is listed as threatened under the Federal and California Endangered Species Acts. This mostly aquatic snake is endemic to the basins and floodplains of the Sacramento and San Joaquin valleys. This species hibernates from

late October to late March, often in abandoned rodent burrows, but can also hibernate in other types of cracks or crevices that provide them with adequate shelter. During the hibernation period they are susceptible to harm from mechanized earthmoving activities (CDFG 2004).

California Red-Legged Frog. The California red-legged frog (*Rana aurora draytoni*) is a Federal threatened species and has been designated by the CDFG as a species of special concern and a protected species. Critical habitat for the red-legged frog was designated on March 13, 2001 (61 Federal Register 25813), effective April 12, 2001. No critical habitat is designated in Sacramento County. The historic distribution of red-legged frog included all of California west of the Sierras and south into Baja California, Mexico. Only isolated populations have been documented in the Sierra Nevada, northern Coast, and northern Transverse ranges (Jennings and Hayes 1994). Typical habitat for this species is a combination of dense, shrubby, or emergent riparian vegetation closely associated with deep water (more than 2.3 feet deep) and the absence of predatory fish and bullfrogs (USFWS 2001). Upland habitats with dense vegetation may be important sheltering habitat during winter. During the dry season, red-legged frogs occupy small mammal burrows and moist leaf litter. This species has been found up to 100 feet from water in adjacent riparian vegetation. Breeding sites require water that remains long enough for breeding purposes and larval development (CDFG 2004). Egg masses are laid in permanent bodies of water.

White-Tailed Kite. The white-tailed kite (*Elanus leucurus*) is a Federal species of concern and a CDFG fully protected species. The species is a yearlong resident in coastal and valley lowlands. It is rarely found away from agricultural areas. Substantial groves of dense, broad-leafed deciduous trees are used for nesting and roosting. The species forages in undisturbed open grasslands, meadows, farmlands and emergent wetlands. The kite nests near the top of dense oak, willow, or other tree stands. White-tailed kites breed from February to October, with a peak from May to August (CDFG 2004).

Western Burrowing Owl. The western burrowing owl (*Athene cunicularia hypugaea*) is a CDFG and USFWS species of concern. Burrowing owls prefer annual and perennial grasslands, typically with sparse or nonexistent tree or shrub canopies. In California, they are found in close association with California ground squirrel burrows (*Spermophilus beecheyi*), which provide them with year-round shelter and seasonal nesting habitat. Burrowing owls also use human-made structures such as culverts, debris piles, or openings beneath pavement as shelter and nesting habitat (CDFG 1995). Burrowing owls become active at dusk, and the majority of feeding occurs at night. Courtship and breeding behavior occurs from March through August, with a peak in April and May. Burrowing owl populations have been on the decline due to diminishing habitat and burrowing mammal control (CDFG 1995).

Purple Martin. Purple martins (*Progne subis*) are a State species of concern. The purple martin is the largest member of the swallow family in North America, measuring 7.5 inches (19 centimeters) long and weighing 1.9 ounces (55 grams) (PMCA 2004). Purple martins spend the non-breeding season in Brazil and then migrate to North America to nest. West of the Rockies and in the deserts, they largely nest in abandoned woodpecker nest cavities. At one time, the purple martin was a fairly common breeder in the Coast Ranges along the length of the State and in smaller numbers in the Sierra Nevada. In the last 25 years, there has been a decrease in California populations. Reasons for the decline include competition for nesting cavities from starlings and removal of dead trees (snags), eliminating nesting sites in several areas (CDFG 2004).

Listed Fish Species

The special-status species discussed below occur in the Sacramento River and the Delta.

The National Marine Fisheries Service classifies and lists salmon and steelhead by Evolutionarily Significant Unit (ESU). "To be considered an ESU, a population or group of populations must (1) be substantially reproductively isolated from other populations, and (2) contribute substantially to the ecological or genetic diversity of the biological species" (Myers et al. 1998). Factors used in determining ESUs include spatial, temporal, and genetic isolation; maturation rates; and other life history traits.

The Central Valley steelhead ESU (*Oncorhynchus mykiss*) is federally listed as threatened and is a State species of special concern. This ESU occurs in the Sacramento and San Joaquin rivers and their tributaries. Steelhead migrate from freshwater to the ocean and return to spawn in freshwater. Steelhead spend most of their adult life in the open ocean. The Central Valley steelhead ESU migrate upstream through the Carquinez Strait from the ocean between August and May to spawn in freshwater streams. Spawning occurs between December and April, with most spawning activity occurring between January and March. Steelhead remain in freshwater for 1 to 4 years before they out-migrate through the Strait into the open ocean during spring and early summer (Goals Project 2000). The population has been estimated to be no greater than 10,000 adult fish, based on Red Bluff Diversion Dam counts, hatchery counts, and past natural spawning escapement estimates for some tributaries (McEwan and Jackson 1996).

Chinook salmon (*Oncorhynchus tshawytscha*) historically ranged from the Ventura River in California to Point Hope, Alaska. The general life history of the anadromous chinook salmon includes both freshwater and oceanic phases of development. Incubation, hatching, and emergence occur in freshwater, followed by migration to the ocean, where smoltification occurs. Maturation is initiated and completed upon return to freshwater habitats. Once maturation is complete, spawning occurs in natal streams.

The following three chinook salmon ESUs are known to occur in the Sacramento River and the Delta:

- The Central Valley Fall/Late Fall-Run ESU is a candidate for Federal listing. This ESU may enter freshwater anytime between August and March. The ESU spawns in the Sacramento and San Joaquin river basins between October and March (Goals Project 2000). Juveniles may emigrate from freshwater between November and May.
- The Sacramento River Winter-Run ESU is designated as a Federal and State endangered species. The ESU typically enters freshwater between January and May and spawns in the Upper Sacramento River below Keswick Dam between May and July. Juvenile emigration occurs during February and March (Goals Project 2000). Critical habitat for the ESU includes the Sacramento River from Keswick Dam downstream to Chipps Island in the Delta and from Chipps Island west to the Martinez-Benicia Bridge (NMFS 2000).
- The Central Valley Spring-Run ESU is designated as a Federal and State threatened species. This ESU typically enters freshwater between April and June and spawns in the Sacramento River basin between August and October (Goals Project 2000). Juvenile out-migration typically occurs between October and December.

3.6.2 Environmental Consequences

Evaluation Criteria

Effects to biological resources were determined by examining the changes that would take place with the implementation of each of the alternatives analyzed. If the changes result in any adverse effect (direct or indirect) on any candidate, sensitive, or special-status species of fish, wildlife, sensitive natural community (such as riparian habitat), or federally protected wetland, it would constitute an impact under that alternative.

Traffic collisions with wildlife can occur anywhere traveled roadways exist and the right-of-way is not fenced (which is primarily only along interstate freeways and major highways). Roadways can also create a barrier to wildlife movement. However, these impacts are greatest for new roadways, and none of the alternatives would introduce a new roadway. The alternatives would affect vehicle traffic patterns and volumes, with drivers shifting their routes to take into account road closure or restriction actions. In general, impacts to wildlife are considered to increase with speed and volume of traffic (Schaefer et al. 2003; Noss n.d.). The risk of impacts from traffic varies greatly between types of wildlife, such as large and small mammals, rodents, and reptiles. A literature review indicated that 2,000 vehicles per day represented a threshold below which impacts were maintained at a relatively "low level" for large mammals and above that level, mortality would be noticeable. Four-lane roadways show a higher level of incidents than two-lane roadways because of the greater distance and mix of traffic that wildlife species have to traverse. Since volumes on all roadways studied (except the Folsom Dam Road, under the Long-Term Closure Alternative) range from 10,000 to 40,000 and are well above the 2,000 threshold, impacts on potential increases of traffic collisions were considered for each of the alternatives.

Polices, plans, and regulations of the USFWS and CDFG were used as guidance based on which the biological effects were interpreted. Compliance with Section 404 of the Clean Water Act was also reviewed for each alternative. Additionally, each alternative was assessed against applicable local policies protecting biological resources.

Each of the alternatives considered was compared with the No Action Alternative to determine its relative net impact.

Analytical Method

Potential impacts to biological resources within the project area were evaluated based on a review of the species list included in Appendix C. These data sources yielded a final list of special-status species with potential to occur in the vicinity of the project area. Each of the species was evaluated for presence or absence at the project area. In addition, the presence of suitable habitat characteristics was evaluated.

3.6.2.1 No Action Alternative

The No Action Alternative would reopen Folsom Dam Road to provide access at pre-February 2003 levels, prior to the indefinite road closure. No major physical alteration of the road, or additional restrictions on traffic flow, would be undertaken. No construction or other actions would occur that would adversely affect any biological resources in the area. No direct impacts to special-status plant or wildlife species are expected from implementation of the No Action Alternative. No wildlife movement corridor has been identified that crosses Folsom Dam Road. While reopening the road would reintroduce some risk of injury to wildlife from collisions,

generally, the traffic volumes on all roadways under the No Action Alternative would not constitute a high risk of collision with animals.

Reopening Folsom Dam Road increases the potential for indirect impacts associated with the failure of the dam structure. In the event that a dam failure occurs, habitats of sensitive and listed species as well as aquatic and terrestrial wildlife would be impacted. Woodland, mixed forest, riparian, and aquatic vegetation may be lost. Aquatic habitats such as stream courses could be altered, breeding and rearing habitat lost, and fish and invertebrates washed out. Species that utilize these habitats would be directly and immediately impacted. Over time, these habitats would be restored.

Soil, rocks, and vegetation may be removed (scour). Scour, in turn, could adversely affect floodplains. It is anticipated that under this scenario, some topsoil would also be lost and would require restoration.

3.6.2.2 Preferred Alternative—Restricted Access Alternative 2

The Preferred Alternative—Restricted Access Alternative 2 would restrict public vehicular access on Folsom Dam Road to peak commuting hours, and Reclamation would require a security inspection of every vehicle using the road. The exact nature and design of the inspections has not been defined; however, it is expected that these security measures would require the construction of inspection stations at each end of Folsom Dam Road. These facilities would need multiple lanes for vehicle inspections. The size and configuration of the inspection facilities would depend on the number of inspection lanes and stations needed to process maximum feasible traffic volumes and maintain a security level that is acceptable to Reclamation (see Table 2-1, footnote 6; also see Section 2.2.2). The configuration of inspection facilities would be determined during the design phase. Any differences between the effects of the Preferred Alternative—Restricted Access Alternative 2 and Restricted Access Alternative 3 would be due to differences in inspection facility configuration needed to accommodate traffic volumes during the operating periods of each alternative (two 3-hour periods and two 2-hour periods per weekday, respectively).

Construction of the inspection stations may require widening the existing Folsom Dam Road at each end. Near the existing road, vegetation and habitat types have been previously disturbed for construction of the dam and road. Additional widening of the road at the location of the inspection stations would be designed to minimize impacts to existing habitat and biological resources. No special-status species or wetlands are currently reported or known to occur in the immediate area of Folsom Dam Road, and impacts to such species or habitat are unlikely. Focused surveys for wetland habitat and special-status species with the potential to occur in the area would be conducted by qualified biologists once these alternatives are defined in terms of construction and impact area.

Compared to the No Action Alternative, construction-related impacts may occur under the Preferred Alternative—Restricted Access Alternative 2. However, construction activities are not expected to affect any threatened or endangered species listed pursuant to the Endangered Species Act.

3.6.2.3 Restricted Access Alternative 3

As with the Preferred Alternative—Restricted Access Alternative 2, Restricted Access Alternative 3 would also restrict public vehicular access on Folsom Dam Road to peak commuting hours and require a security inspection of every vehicle using the road. Similarly, the size and configuration of the inspection facilities would depend on the number of inspection lanes and stations, which would be determined during the design phase. Any differences between the effects of Restricted Access Alternative 3 and the Preferred Alternative—Restricted Access Alternative 2 would be due to differences in inspection facility configuration needed to accommodate traffic volumes during the operating periods of each alternative (two 2-hour periods and two 3-hour periods per weekday, respectively). Otherwise, effects would be similar to those listed for the Preferred Alternative—Restricted Access Alternative 2.

Compared to the No Action Alternative, construction-related impacts may occur under Restricted Access Alternative 3. However, construction activities are not expected to affect any threatened or endangered species listed pursuant to the Endangered Species Act.

3.6.2.4 Long-Term Closure Alternative

The long-term closure of Folsom Dam Road would continue conditions as they currently exist. No construction or other actions would occur that would adversely affect any biological resources in the area. While traffic volumes on nearby roadways have increased since the February 2003 closure as described in Section 3.1, these changes have not impacted biological resources measurably. From a wildlife barrier and potential collision perspective, the traffic volumes under the Long-Term Closure Alternative create a barrier to movement for wildlife similar to current conditions and would not create a new substantially greater risk or impact. Therefore, relative to the No Action Alternative, no adverse effects would occur to biological resources. The Long-Term Closure Alternative would not affect threatened or endangered species listed pursuant to the Endangered Species Act.

3.6.3 Mitigation

3.6.3.1 No Action Alternative

Impacts to biological resources are likely to result in the event of a dam failure. However, no mitigation is recommended.

3.6.3.2 Preferred Alternative—Restricted Access Alternative 2

If special-status species are observed in the areas where new inspection facilities would be added, possible direct or indirect impacts to any special-status species determined to be present could likely be avoided and or mitigated by taking the following general measures:

- Complete necessary specific surveys based on the probable construction area of impact for adding inspection facilities.
- Make changes during the project design phase to avoid identified impacts.
- Time construction activities to avoid impacts to special-status species, such as nesting birds.

- Use best management practices to avoid unnecessary soil disturbance, erosion, or impacts to vegetation outside the immediate construction area.
- Implement off-site compensation by preservation of existing populations at other sites and or enhancement of the affected species or habitat.
- If tree removal cannot be avoided, replace trees at ratios depending on tree type and size.

3.6.3.3 Restricted Access Alternative 3

The same mitigation measures listed for the Preferred Alternative—Restricted Access Alternative 2 would apply to this alternative.

3.6.3.4 Long-Term Closure Alternative

No adverse impacts to biological resources would result from the Long-Term Closure Alternative. Therefore, no mitigation is required.

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3.7.1 Affected Environment

3.7.1.1 Power Generation

Folsom Dam is part of the Central Valley Project, a major water project that extends from the Cascade Range in the north to the plains along the Kern River approximately 500 miles to the south. The Central Valley Project was built primarily to provide the Central Valley with water supply, flood control, and hydropower generation. Although the project emphasized irrigation and flood control, features of the project such as Folsom Dam also provide domestic and industrial water supply, water quality enhancement, environmental Central Valley Project Improvement Act benefits, recreation, and electric power generation.

The Folsom Power Plant is located on the American River, about 20 miles northeast of Sacramento. The power plant has three generators with a capacity of 66,240 kilowatts (kW) each for an average generating capacity of 198,720 kW. Maximum capacity is about 200,000 kW. Folsom is a "peaking" power plant, which means it supplies power primarily during times of peak electricity demand. It is dedicated to first meeting the requirements of the Central Valley Project facilities and preferred customers. The remaining energy from the plant is marketed to various customers in Northern California. On average, the power plant produces about 10 percent of the power used in Sacramento each year. This plant also supplies power to the local pumping plant to provide domestic water supply to the cities of Folsom and Roseville, Folsom Prison, and the San Juan Water District. The Folsom Power Plant has been increasingly relied upon to support local electricity loads during system disturbances.

The Folsom Power Plant is one of a large number of hydroelectric power-generating facilities in California. In addition to hydroelectric plants, California has a number of other types of power-generating facilities, including oil/gas burning plants, geothermal plants, and renewable sources such as solar and wind (Figure 3.7-1). According to the California Energy Commission, California has approximately 57,000 to 58,000 megawatts (MW) of generation capacity over the next several years (Table 3.7-1). In addition to power generated within the State, supplies can be imported from other sources, including out-of-state sources, bringing the total projected supply to approximately 62,000 MW (CEC 2003a). Based on these projections, electricity generated at Folsom Dam represents about 0.3 percent of the total projected power generation in the State.

Electricity distribution in the State is managed by the California Independent System Operator (ISO). The California ISO is a not-for-profit, public benefit corporation. It assumed the responsibility for electricity distribution in 1998, when California opened its energy markets to competition and the State's investor-owned utilities turned their private transmission power lines over to the California ISO to manage. The California ISO is charged with managing the flow of electricity along the long-distance, high-voltage power lines that make up the bulk of California's transmission system.

Table 3.7-1
2004–2006 Statewide Supply/Demand Balance (MW)

	August 2004	August 2005	August 2006
Existing Generation	57,434	56,956	58,902
Forced and Planned Outages	-3,750	-3,750	-3,750
Retirements	-1,191	-1,054	-2,385
Net Firm Imports	5,895	5,748	5,848
Additions	713	3,000	1,096
Spot Market Imports	2,700	2,700	2,700
Total Supply	**61,801**	**63,600**	**62,411**
1-in-2 Summer Demand	**53,331**	**54,500**	**55,487**
Projected Operating Reserve (1-in-2)	**16%**	**17%**	**12.5%**
1-in-10 Summer Demand	**56,571**	**57,811**	**58,858**
Projected Operating Reserve	**9%**	**10%**	**6%**

Source: California Energy Commission 2003.

Note: Does not include an estimate for new DSM or dynamic pricing demand reductions. August 2003. The projected planning reserves do not include Spot Market Imports. Existing Generation includes dependable hydro generation capacity estimates under adverse water conditions.

3.7.1.2 Fuel Consumption

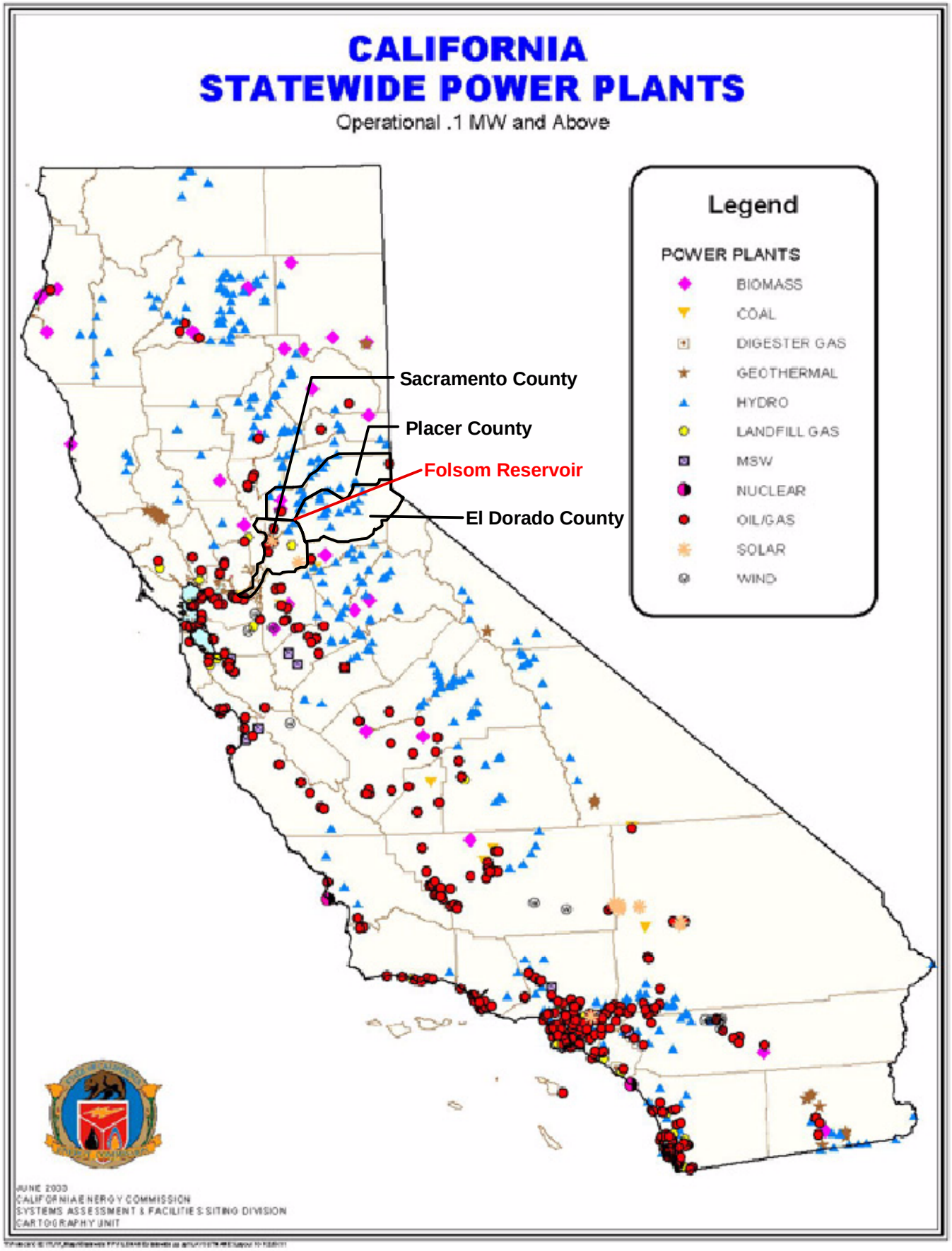
In California, the vast majority of energy consumed originates from nonrenewable sources. Nearly 50 million gallons of gasoline and diesel are consumed each day in California, accounting for half of the State's total energy consumption. Although alternative engine and energy sources are advancing, petroleum-based fuel is predicted to remain the State's primary source of fuel for transportation for the foreseeable future (CEC 2003b).

One of the focuses on conservation of energy has, therefore, been on reducing the energy consumed by transportation, primarily automobile traffic. Conservation objectives have included improving the efficiency of the transportation mode, such as U.S. Environmental Protection Agency (USEPA) fleet requirements for increasing the fuel efficiency of personal automobiles. Other conservation strategies include encouragement of high-occupancy vehicle use, improved road construction and maintenance, and traffic flow improvements.

3.7.2 Environmental Consequences

Evaluation Criteria

Each of the alternatives was evaluated based on changes to power generation and/or fuel consumption. The action alternatives were then compared to the No Action Alternative to determine the net impact.



N

Not to scale

Statewide Power Plants and
Folsom Reservoir and Power Plant

Figure
3.7-1

3.7.2.1 No Action Alternative

Power Generation

Having Folsom Dam Road accessible to traffic would have no immediate adverse effect on power generation.

Reopening the road would increase the risk of potential dam failure. Under that scenario, it is assumed that power generation and water supply would have a higher risk of being affected temporarily. The regional generation capacity is not anticipated to be affected in the long term. However, transmission and distribution of power could be impacted for as long as local and regional infrastructures are disrupted. Emergency procedures would have to be implemented in the short term.

Fuel Consumption

A region-level analysis was conducted to evaluate and compare the influence of the proposed Folsom Dam Road Access Restriction alternatives on the consumption of transportation energy in the Sacramento metropolitan area. Table 3.7-2 presents an estimate of total gallons of fuel used per day, based on total vehicle miles and hours traveled per day. Table 3.7-2 demonstrates that the No Action Alternative would have no adverse effect. Furthermore, no sustained change is expected from the dam failure scenario.

Table 3.7-2
Fuel Consumption Estimates

Year 2005	Vehicle Miles Traveled (miles per day)[1]	Vehicle Hours Traveled (hours per day)[1]	Total Gallons per Day	Percent Change in Fuel Usage Compared to No Action Alternative
No Action	2,338,000	70,700	85,367	--
Preferred Alternative - Restricted Access Alternative 2	2,338,500	71,200	85,380	0.02
Restricted Access Alternative 3	2,339,000	71,500	85,571	0.24
Long-Term Closure Alternative	2,340,000	71,500	85,703	0.36
Year 2013				
No Action	3,268,000	100,100	119,779	
Preferred Alternative - Restricted Access Alternative 2	3,249,000	100,500	119,432	-0.29
Restricted Access Alternative 3	3,249,000	100,500	119,432	-0.29
Long-Term Closure Alternative	3,249,000	100,500	119,432	-0.29

Sources: Section 3.01, Energy and Transportation Systems, Caltrans, July 1983.

Notes: Fuel consumption rate value is calculated for Light Duty Vehicles, assuming an "On Road Inertia Vehicle Weight." Base year for this value is 1980 (Caltrans 1983).

3.7.2.2 Preferred Alternative—Restricted Access Alternative 2

Power Generation

The Preferred Alternative—Restricted Access Alternative 2 would have no effect on power generation. Power generation would not differ from the No Action Alternative except that the action alternatives would reduce the risk associated with the potential for dam failure and indirect temporary impacts to power generation.

Fuel Consumption

Total estimated fuel consumption for the Preferred Alternative—Restricted Access Alternative 2 is also shown in Table 3.7-2. The alternative would result in a small increase in fuel consumption in comparison to the No Action Alternative, due to the change in vehicle miles traveled. However, the change is not substantial.

~~Fuel consumption was not specifically calculated for the Preferred Alternative—Restricted Access Alternative 2, because vehicle miles traveled were not calculated for this alternative. However, fuel consumption under the Preferred Alternative—Restricted Access Alternative 2 would be higher than under the No Action Alternative, but less than under Restricted Access Alternative 3 and the Long-Term Closure Alternative, based on the analysis presented in Section 3.1.~~

3.7.2.3 Restricted Access Alternative 3

Power Generation

Restricted Access Alternative 3 would have no effect on power generation. Power generation would not differ from the No Action Alternative except that the action alternatives would reduce the risk associated with the potential for dam failure and indirect temporary impacts to power generation.

Fuel Consumption

Estimated fuel consumption is also listed in Table 3.7-2. As with the Preferred Alternative—Restricted Access Alternative 2, the change is minor and would not result in a substantial change in regional or local energy use.~~Fuel consumption was not specifically calculated for Restricted Access Alternative 3, because vehicle miles traveled were not calculated for this alternative. However, fuel consumption under Restricted Access Alternative 3 would be higher than under Restricted Access Alternative 2 and the No Action Alternative, but less than under the Long-Term Closure Alternative, based on the analysis presented in Section 3.1.~~

3.7.2.4 Long-Term Closure Alternative

Power Generation

The Long-Term Closure Alternative would have no effect on power generation on a regional basis. Long-term closure of Folsom Dam Road would require no additional power generation beyond current supply. There would be no long-term difference in power generation between the Long-Term Closure Alternative and No Action Alternative. No temporary power generation impacts would result from the Long-Term Closure Alternative.

Fuel Consumption

Estimated fuel consumption is slightly higher than the other alternatives but would not result in a substantial change in fuel consumption.

~~The Long-Term Closure Alternative would result in an approximately 0.4 percent increase in fuel consumption compared with the No Action Alternative. This is based on the increased traffic projected in Section 3.1 for each alternative. Citywide, the estimated change amounts to approximately 300 gallons of fuel per day.~~

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3.8.1 Affected Environment

The two primary features of Folsom Lake State Recreation Area (SRA), Folsom Lake and Lake Natoma, are also its principal recreational attractions. Many outdoor recreation activities are water dependent or water enhanced, and such activities are popular at lakes and reservoirs in California. Boating, waterskiing, sailing, and swimming are the most popular activities in the Folsom Lake SRA. In addition, several water-enhanced activities, such as hiking, biking, picnicking, camping, and horseback riding, also attract visitors. With nearly 2 million visitors in 2001, Folsom Lake SRA is one of the most popular in the California Department of Parks and Recreation (CDPR) system (CDPR 2004).

At full capacity, Folsom Lake has approximately 11,500 surface acres and 75 miles of shoreline. Folsom Lake is the result of damming the American River at Folsom in the 1950s as part of the Central Valley Project. The U.S. Army Corps of Engineers (USACE) built Folsom Dam, and Reclamation operates the dam for flood control, water supply, and power generation.

Lake Natoma is the afterbay of Folsom Dam and is located about 1 mile below the dam at the foot of a steep river gorge. Lake Natoma has approximately 500 surface acres and is 4 miles in length from the foot of the gorge at Rainbow Bridge in Folsom to Nimbus Dam in Orangevale. The lake is narrow and linear with 14 miles of dense riparian shoreline and the Lake Natoma Bluffs stretching from Negro Bar to Mississippi Bar.

3.8.1.1 Levels of Use

Visitor Attendance

Visitor attendance at Folsom Lake SRA averaged just over 1.5 million visitors between 2000 and 2003, with the highest attendance in 2001 (1,942,248) and the lowest in 2003 (1,182,383) (CDPR 2004).

In general, visitor attendance is affected by changes in park entrance fees. In July 2000, park entrance fees in California were reduced 50 percent to early 1980s levels. As a result, CDPR reported a subsequent increase in visitor attendance of about 30 percent systemwide. Visitor use in 2001 was considerably higher than in 2003 (64 percent), which corresponds to the fact that on January 1, 2003, CDPR entrance fees were increased in response to the State budget crisis.

Visitor use varies due to many factors, including time of day, day of the week, season, and holiday or vacation times. Typically, fishing activities occur early in the morning or later in the afternoon. Swimming and day use activities occur during the middle part of the day, and camping involves overnight use.

A high percentage of recreationists at Folsom Lake are from the local area. Approximately 90 percent of users are from the local region, and 10 percent of the users come from other regions (Reclamation 1997e).

Use Characteristics

Although Folsom Lake SRA provides recreation opportunities during the entire year, recreation activities are concentrated in the summer months, typically from May through September. Peak use during this season ranged from 68 percent to 83 percent of the total yearly use during the 2000 to 2003 period. During the peak season, water-dependent activities are most prevalent.

Boating accounts for 30 percent of the recreation demand in Folsom Lake SRA. Overall, water-related recreation activities account for 85 percent of all recreation visits to Folsom Lake SRA (USACE 2001).

3.8.1.2 Recreation Facilities

Water-Related Facilities

Folsom Lake supports a wide range of water-dependent recreation activities, including boating, sailing, fishing, swimming, wind surfing, waterskiing, and rafting. The upper (easternmost) reaches of the lake are designated slow zones for quiet cruising, fishing, and nature appreciation. Facilities for Folsom Lake and Lake Natoma are shown on Figure 3.8-1.

Major facilities on Folsom Lake include five developed boat launch areas, one marina, and two formal beach areas. The use of Folsom Lake and its shoreline facilities are affected by fluctuating water levels due to releases at Folsom Dam to the Central Valley during the dry summer months. Lake levels in a normal year will generally fall from an elevation of 466 feet at the beginning of the peak summer season to a low of 405 feet in late autumn long after the season has ended (CDPR 2000). As a result, boat launch facilities are designed to maintain some level of service throughout the boating season as water levels fall.

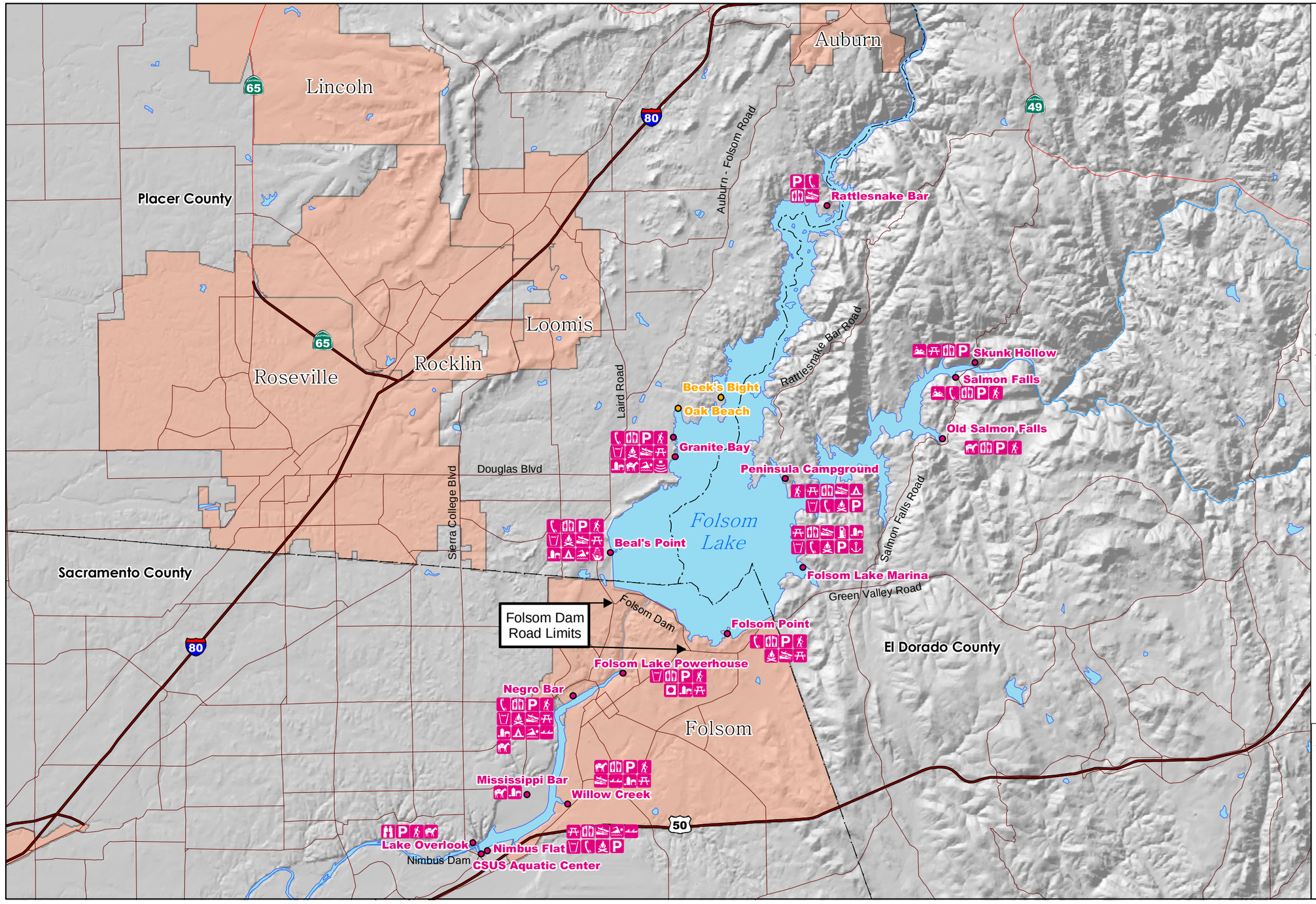
Lake Natoma is a popular location for paddling, rowing, swimming, and fishing due to its quiet, sheltered waters. Major facilities on Lake Natoma include three boat launch areas, formal beaches at Negro Bar and Nimbus Flat, and the California State University, Sacramento, (CSUS) Aquatic Center just above Nimbus Dam.

Marina. The Folsom Lake Marina is located at Brown's Ravine and includes 685 wet slips and 175 dry storage slips. Other facilities provided at the marina are outlined in Table 3.8-1.

Table 3.8-1
Folsom Lake Marina Facilities

Boat Slips	Total	16-foot Slips	20-foot Slips	24-foot Slips	Waiting List (years) 16 and 20-foot/24-foot
Wet	685	72	368	245	5/9
Dry	175	N/A	N/A	N/A	5/9
Launch Ramps	**Lanes**	**Slope (%)**	**Length (feet)**	**Construction**	**Minimum Lake Level (feet)**
Main Ramp	4	15	420	Asphalt/ Concrete	395
Hobie Cove	3	15	323	Concrete	375
Parking	**Vehicle Spaces**	**Vehicle/Trailer Spaces**		**Disabled Spaces**	**Construction**
Main Ramp		404		5	Asphalt
Hobie Cove	41	150		3	Asphalt
Day Use		122			Asphalt

Source: Wallace Roberts & Todd, LLC 2003



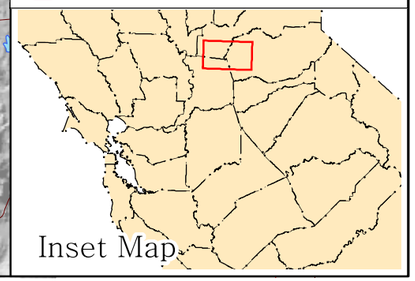
Legend

Recreation Facilities

- Facility Sites
- Other Points of Interest
- Freeway or Primary Highway
- Primary road
- Secondary and connecting road
- Local road
- Road
- Creeks
- Water Bodies
- County Boundaries
- City Boundaries

Facility Key

- Activity Center
- Barbeques
- Beach
- Boat Launch
- Comfort Station
- Concession
- Drinking Water
- Fueling Station
- Marina
- Picnic Area
- Shower
- Public Telephone
- Vehicle Parking
- Raft Take-Out
- Trail Access
- Horse Assembly
- Cartop Boat Launch
- Picnic Area
- Historic Attraction
- Camping



1 0.5 0 1 2 3 4 Miles

N

	Folsom Dam Road Restriction EIS 18600807	Recreation Facilities at Folsom Lake SRA	Figure 3.8-1

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In addition, concession facilities at the Folsom Lake Marina provide a snack bar, supplies, fuel, and boat equipment rentals. Two restrooms, one information kiosk, 38 picnic tables, 16 barbecues, and drinking water are available at the marina.

Boat Launches. Folsom Lake SRA has nine boat launch facilities, six on Folsom Lake and three on Lake Natoma. The main launch facilities on Folsom Lake are located at Granite Bay, with secondary facilities at Folsom Point, Brown's Ravine, and Rattlesnake Bar. These facilities are designed for powerboat, personal watercraft (jet ski), and sailboat launching. Table 3.8-2 summarizes the boat launch facilities available at Folsom Lake SRA.

Table 3.8-2
Folsom Lake SRA Boat Launch Facilities

Folsom Lake	Lanes	Slope (%)	Length (feet)	Width (feet)	Construction	Minimum Lake Level (feet)
Granite Bay						
Stage 1	2	15	300	60	Concrete	395
Stage 2	10	10	250	700	Asphalt/Concrete	426
Stage 3	10	10	250	700	Asphalt/Concrete	435
Stage 4	14	15	180/250	330	Asphalt/Concrete	425
5 Percent	4	5	1,200	60	Asphalt	408
Low Water	2	15	60	45	Concrete	360
Folsom Point	4	11	900	80	Asphalt	406
Brown's Ravine						
Main Ramp	4	15	420	60	Asphalt/Concrete	395
Hobie Cove	3	15	323	60	Concrete	375
Rattlesnake Bar	2	2	300	40	Asphalt	425
Peninsula						
Day Use	1	15	260	30	Concrete	434
South Ramp	1	10	750	25	Asphalt/Concrete	410
Beal's Point	1	5	400	40	Gravel	420
Lake Natoma	**Lanes**	**Slope (%)**	**Length (feet)**	**Width (feet)**	**Construction**	**Minimum Lake Level (feet)**
Negro Bar	2	5	200	60	Concrete	200
Nimbus Flat						
Main Ramp	2	1	60	30	Concrete	115
Alternate	1	1	30	30	Gravel	120
Willow Creek	1	1	35	12	Gravel	115

Source: Wallace Roberts & Todd, LLC 2003

Whitewater Rafting

Commercial and private whitewater rafting are popular activities on the South Fork of the American River. The 21-mile run between Chili Bar Dam near Highway 193 and Salmon Falls Road at the upper extent of Folsom Lake is the most popular (and most populated) whitewater run in California (www.ca.blm.gov/folsom/sfamerican.html). Several agencies have jurisdiction in this run of the

American River: the U.S. Bureau of Land Management owns 3,700 acres adjacent to the river and 12.5 miles of river frontage (located along the river approximately 0.5 mile downstream from Highway 193, at the Dave Moore Nature Area, along the river downstream from Greenwood Creek, and along the river from restroom facilities 15 miles downstream from Highway 193 to Folsom Lake SRA lands beginning at Weber Creek [www.co.el-dorado.us/parks/pdf/rivermap.pdf]); CDPR owns 1.5 miles of river frontage between Hospital Bar and Salmon Falls Road; and El Dorado County is responsible for permitting river use by commercial outfitters.

Currently, about 40 commercial rafting outfitters operate on the South Fork and hold 67 permits. These outfitters must obtain river use permits from El Dorado County that specify the number of weekday and weekend trips permitted, the number of rafts and rafters per group, and insurance requirements. Permits are not required for private boats (County of El Dorado 2001).

The two whitewater rafting takeout facilities are located at Skunk Hollow and Salmon Falls where Salmon Falls Road crosses the South Fork of the American River. Approximately 9,000 commercial outfitters takeout at Salmon Falls (50,000 to 60,000 boaters) and an additional 4,000 private boats (approximately 24,000 boaters) takeout at Skunk Hollow annually (commercial boaters are prohibited from using Skunk Hollow). At Skunk Hollow, the day use area consists of 35 vehicle parking spaces, two disabled parking spaces, and an asphalt-constructed loading area. In addition, there are two vault toilets, three picnic tables, and raft drying rails. The day use area at Salmon Falls has 32 vehicle parking spaces, 12 vehicle/trailer spaces, one disabled parking space, and is constructed of asphalt. Two vault toilets and drinking water are available, but there are no picnic tables or raft drying rails (Wallace Roberts & Todd, LLC 2003). Both Skunk Hollow and Salmon Falls receive heavy use during the peak season weekends and are often used as parking areas for the nearby Darrington and Sweetwater trails.

Land-Based Facilities

The land-based facilities at Folsom Lake SRA consist of campgrounds, day use areas, other facilities, and trails.

Campgrounds. Folsom Lake SRA has a total of 176 campsites that can accommodate tents, trailers, recreation vehicles, and group campers. These facilities are summarized in Table 3.8-3.

Table 3.8-3
Folsom Lake SRA Campground Facilities

Name	No. / Description	Rest-rooms	Showers	Hookups	Picnic Tables	Grills/ Fire Pits	Drinking Water	Boat Ramps
Peninsula	104 single	5	No	No	104	0/104	Yes	1
Beal's Point	49 single/20 RV	2	Yes	Sanitary for RV sites	69	0/69	Yes	NA
Negro Bar Group	3 group	1	No	No	17	15/5	Yes	NA

Source: Wallace Roberts & Todd, LLC 2003
NA = Not available
RV = Recreational Vehicle

Day Use Areas. Day use facilities are the busiest areas in Folsom Lake SRA and accommodate the most visitors. Table 3.8-4 summarizes the features of each of the day use facilities.

Other Facilities at Folsom Lake SRA. Other facilities at Folsom Lake SRA include Folsom Dam, the American River Water Education Center, and the CSUS Aquatic Center.

Folsom Dam is 1,400 feet long and 340 feet high and provides flood control, water storage, and power generation. Daily walking tours of Folsom Dam, once provided free of charge to the public by Reclamation staff, are no longer offered due to security concerns following the events of September 11, 2001.

The American River Water Education Center, managed by Reclamation and the CDPR, provides tours, exhibits and interactive activities illustrating the watershed of the American River and water conservation. Exhibits describe physical and biological characteristics of the watershed as well as the history of human use, including the diverse interests in American River water today.

The CSUS Aquatic Center is located on Lake Natoma at the south end of Nimbus Dam. The center is a cooperative operation of the Associated Students of California State University Sacramento, the University Union of CSUS, California Department of Boating and Waterways, and CDPR. The center serves as the base for CSUS's waterski and rowing teams and aquatic courses. In addition, the center offers a full range of public courses in sailing, windsurfing, jet skiing, kayaking, rowing, and canoeing as well as youth programs and summer camps. Public kayak and canoe rentals are also available. The center has been renovated and includes a new administrative building with locker rooms, classrooms, and storage, and a new boathouse and dock (www.csusaquaticcenter.com/html/new_facility.html).

Trails. Folsom Lake SRA has an extensive trail system that links most facilities and accommodates a variety of users including walkers and hikers, horseback riders, cyclists, and mountain bikers. Although over 90 miles of trails exist within Folsom Lake SRA, many areas are inaccessible by trail, and no continuous trail runs around the lake. Due to the narrow land base and steep topography around both Folsom Lake and Lake Natoma, the opportunities to develop new trail facilities are limited. Within this context, the demand for trail access continues to increase for all types of trail uses, including pedestrian, equestrian, mountain bikes, and bicycling. The increased demand also results in a growing concern about conflicts between the different kinds of trail users, particularly on multiuse trails that are open to all users. Table 3.8-5 describes the trails in Folsom Lake SRA and provides a summary of these facilities.

Adjacent and Downstream Recreational Facilities. Several recreation facilities are adjacent to Folsom Lake SRA. They include the Auburn SRA, Nimbus Fish Hatchery, American River Parkway, and the Folsom City Park.

The Auburn SRA is contiguous with Folsom Lake SRA along the North Fork of the American River, and its western boundary is just below the outlet of the Auburn Dam diversion tunnel. The Auburn SRA covers more than 35,000 acres along 40 miles of the North and Middle Forks of the American River and offers a wide variety of recreation opportunities to over 500,000 visitors a year. Major recreational activities include hiking, swimming, boating, fishing, camping, mountain biking, gold panning, and off-highway motorcycle riding. Whitewater recreation is also very popular on both forks of the American River.

Table 3.8-4
Folsom Lake SRA Day Use Facilities

Name	Beach	Concession	Restrooms	Picnic Tables	Barbecues	Activity Center	Boat Ramp	Drinking Water	Equestrian Staging Area	Trail Access	Parking
Beal's Point	Yes (guarded)	Snack bar/ beach equipment	3	53	31	No	No	Yes	No	Lake Natoma/ Granite Bay	387 (8 disabled)
Granite Bay	Yes (guarded)	Snack bar/ beach, boating equipment	5	100	42	Group use by reservation	No	Yes	Yes	Pioneer Express/ Granite Bay/ Beeks Bight	
Old Salmon Falls	No	No	2 chemical	No	No	No	No	No	Yes	Brown's Ravine/ Sweetwater Creek	15[1]
Peninsula	No	No	2 chemical	6 with ramadas	No	No	Yes	No	No	No	60[1]
Folsom Point	No	No	2 vault	50	46	No	No	No	No	Brown's Ravine	77 (2 disabled)
Observation Point	No	No	No	No	No	No	No	No	No	No	77 (2 disabled)
Folsom Powerhouse	No	Gift Shop	1	10	No	Museum	No	Yes	No	Powerhouse Loop	35[1]
Willow Creek	No	Boating equipment	2 vault	4	No	No	Yes	No	No	Lake Natoma	20 (1 disabled)
Nimbus Flat	Yes (unguarded)	No	2	37	11	No	2 small docks	Yes	No	Lake Natoma	231 (8 disabled)
Lake Overlook	No	No	No	No	No	No	No	No	Yes	Lake Natoma	150
Negro Bar	Yes (unguarded)	Boating equipment	2	32	4	No	Yes	Yes	No	Lake Natoma	96 (4 disabled)

Source: Wallace Roberts & Todd, LLC 2003

[1] Estimated parking capacity; vehicle spaces not striped.

Table 3.8-5
Folsom Lake SRA Trail Facilities

Name	Start	Finish	Use	Length (Miles)[1]	Surface	Connections	Facilities
Pioneer Express	Folsom Lake SRA boundary	Beal's Point	Pedestrian, Equestrian	21	Dirt	Los Lagos, Granite Bay Multi-Use, Granite Bay/ Beal's Point, Doton's Point ADA	Drinking water, restrooms, picnic area, concession, beach, camping, equestrian staging
Los Lagos	Auburn-Folsom Road	Beeks Bight	Pedestrian, Equestrian	1.5	Dirt	Pioneer Express	None
Granite Bay Multi-Use							
Granite Bay / Beal's Point	Granite Bay Beach	Beal's Point	Multi-use	2	Dirt	Pioneer Express, Lake Natoma Paved (East)	Drinking water, restrooms, picnic area, concession, beach, camping, equestrian staging
Granite Bay	Granite Bay Entrance	Beeks Bight	Multi-use	5	Dirt	Granite Bay/Beal's Point, Pioneer Express, Los Lagos, Doton's Point ADA	Drinking water, restrooms, picnic area, concession, beach, equestrian staging
Center Trail	Oak Point Beach	Beeks Bight	Multi-use	1	Dirt	Pioneer Express, Granite Bay	None
East Natoma Paved East Trail	Folsom Truss Bridge	Nimbus Dam	Multi-use	6	Paved	Lake Natoma Dirt (East), Lake Natoma West Trails, American River Bike	Drinking water, restrooms, picnic area, concession, beach, equestrian staging
West Trail	Beal's Point	Nimbus Dam	Multi-use	10	Paved	Lake Natoma Dirt (West), Lake Natoma East Trails, Pioneer Express, Granite Bay/ Beal's Point, American River Bike	Drinking water, restrooms, picnic area, concession, beach, equestrian staging
Lake Natoma Dirt							
East Trail	Folsom Truss Bridge	Nimbus Dam	Multi-use	6	Dirt	Lake Natoma Dirt (East), Lake Natoma West Trails, American River Bike	Drinking water, restrooms, picnic area, concession, beach, equestrian staging
West Trail	Beal's Point	Lake Overlook	Pedestrian, Equestrian	9	Dirt	Lake Natoma Paved (West), Lake Natoma East Trails, Pioneer Express, Granite Bay/ Beal's Point, American River Bike	Drinking water, restrooms, picnic area, concession, beach, equestrian staging
Middle Ridge	Sunset/Main Avenues	Nimbus Dam	Pedestrian, Equestrian	1	Dirt	Snowberry, Lake Natoma Dirt (West)	None

Table 3.8-5, concluded

Name	Start	Finish	Use	Length (Miles)[1]	Surface	Connections	Facilities
Snowberry	Sunset/Main Avenues	Snipes Pershing Ravine	Pedestrian, Equestrian	1.5	Dirt	Middle Ridge, Lake Natoma Dirt (West)	None
Folsom Point/ Brown's Ravine	Folsom Point	Brown's Ravine	Multi-use	4	Dirt	Brown's Ravine/Old Salmon Falls	Drinking water, restrooms, picnic area, concession, equestrian staging
Brown's Ravine/Old Salmon Falls	Brown's Ravine	Old Salmon Falls	Pedestrian, Equestrian	12	Dirt	Folsom Point/ Brown's Ravine	Drinking water, restrooms, picnic area, concession, equestrian staging
Sweetwater Creek	Sweetwater Creek	Salmon Falls	Multi-use	2	Dirt	Darrington	Drinking water, toilets
Darrington	Salmon Falls	Peninsula Campground	Mountain bike, Pedestrian	9	Dirt	Sweetwater Creek, Peninsula Trail	Drinking water, restrooms, picnic area, camping
Pedestrian							
Doton's Point (ADA)	Beeks Bight	Doton's Point	Pedestrian	1	Dirt	Pioneer Express, Granite Bay Multi-Use	None
Powerhouse Loop	Powerhouse	Powerhouse	Pedestrian	1	Dirt	None	Drinking water, restrooms, picnic area
Peninsula (ADA)	Peninsula Campground	Peninsula Point (South)	Pedestrian	1	Dirt	None	Drinking water
Total				**94**			

Source: Wallace Roberts & Todd, LLC 2003

[1] Within Folsom Lake SRA only

The Nimbus Fish Hatchery is located on the American River just below Nimbus Dam and Lake Natoma. The facility is owned and funded by Reclamation and operated by the California Department of Fish and Game (CDFG). The hatchery raises rainbow trout and kokanee salmon for more than 250 lakes and streams in Northern and Central California for recreational fishing, and produces 4 million chinook salmon and 430,000 steelhead trout annually. The facility includes a visitor center, a short shoreline trail, and a river overlook (Reclamation n.d.).

The American River Parkway extends 23 miles west from Nimbus Dam to Discovery Park at the confluence of the American and Sacramento rivers in downtown Sacramento. The most popular feature is the parkway's Jedediah Smith Memorial Trail, also known as the American River Bike Trail, that extends 32 miles east from Discovery Park in Sacramento to Beal's Point in Folsom Lake SRA. The County of Sacramento is responsible for the operation and maintenance of facilities within the parkway downstream of Nimbus Dam, while CDPR is responsible for facilities upstream of Nimbus Dam.

The 36-acre Folsom City Park is located on Stafford Street just east of downtown Sacramento and abutting CDPR lands and provides a wide range of facilities, including the Folsom Community Center, City Park Gazebo, City Park Pavilion, Folsom City Zoo, and the Dan Russell Arena. An estimated 90,000 visitors come to the zoo each year. The 7,000-seat arena, which is home of the annual Memorial Day and Fourth of July Rodeos, also hosts circuses, concerts, graduations, and music festivals (www.folsom.ca.us).

Access to Facilities

Folsom Lake SRA can be reached by U.S. Highway 50 to Hazel Avenue or by Interstate 80 to Douglas Boulevard. The major roadways providing access to the recreation areas of Folsom Lake SRA are Douglas Boulevard, Auburn-Folsom Road, Green Valley Road, and Salmon Falls Road. Table 3.8-6 summarizes the access routes to recreation facilities at Folsom Lake SRA.

Several facilities are closed due to security concerns related to the events of September 11, 2001, and staffing shortages. These facilities include Observation Point (also known as Folsom Dam Overlook), Folsom Dam, and Folsom Dam Road.

Table 3.8-6
Folsom Lake SRA Recreation Facility Access

Facility Name	Type	Access
Beal's Point	Day use, campground, boat launch	Auburn/Folsom Road/Oak Hill Drive intersection, east leg
Granite Bay	Day use, boat launch	Douglas Boulevard terminus
Rattlesnake Bar	Day use, boat launch	Rattlesnake Road terminus from Auburn/Folsom Road or Newcastle Road
Peninsula Campground	Day use, campground, boat launch	Rattlesnake Bar Road near community of Pilot Hill
Salmon Falls/Skunk Hollow	Whitewater boating access, day use trails	Salmon Falls Road near crossing with South Fork American River
Old Salmon Falls	Day use	Salmon Falls Road
Brown's Ravine/Folsom Marina	Day use, boat launch, marina	Green Valley Road via north leg of Hidden Acres Drive/Green Valley Road intersection

Table 3.8-6, concluded

Facility Name	Type	Access
Folsom Point	Day use, boat launch	East Natoma Street via north leg of Briggs Ranch Drive East/East Natoma Street intersection
Negro Bar	Day use, group campground	Greenback Lane off of Folsom Boulevard
Lake Overlook	Observation point	Hazel Avenue north of Nimbus Dam
Nimbus Flat	Day use	Hazel Avenue southeast of Gold Country Boulevard
CSUS Aquatic Center	Aquatic center	Hazel Avenue/Gold Country Boulevard intersection
Willow Creek	Day use, boat launch	Folsom Boulevard, via right turn off southbound direction

Source: LSA Associates, Inc. 2003

3.8.2 Environmental Consequences

Evaluation Criteria

The evaluation criteria for recreation resources are whether any of the alternatives would result in the following:

- ~~Changes in reservoir surface elevations that would preclude the use of the marina, boat ramps, swimming beaches, day use facilities, campgrounds, and trails at Folsom Lake SRA during periods of high recreation use.~~
- Increased use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated.
- Effects to recreational facilities or construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

Impacts under each of the alternatives were evaluated based on the criteria above. Each action alternative is compared to the No Action Alternative to determine its net effect on recreation resources.

3.8.2.1 No Action Alternative

Under the No Action Alternative, Folsom Dam Road would be reopened to provide access at pre-February 2003 levels. No immediate adverse impacts to recreation would occur.

With this alternative, however, Reclamation has determined that the risk of dam failure would be elevated. If a dam failure occurs, reservoir-based activities would be directly affected, and associated land-based recreation may be indirectly affected. Under this scenario, water releases could not be regulated, and whitewater rafters would be impacted until regulated releases could be restored. Both local residents and visitors would be impacted under this scenario.

3.8.2.2 Preferred Alternative—Restricted Access Alternative 2

Water-Related Recreation

As stated in Section 3.8.1, water-related activities, such as boating, fishing, and swimming, are the prevalent recreation activities at Folsom Lake SRA. Under the Preferred Alternative—Restricted Access Alternative 2, access to water-related recreation facilities would continue to be hampered by the Folsom Dam Road closure on weekends and nonpeak weekday hours, but most effects would be to local residents on the north side of the lake who moor their boats at Brown's Ravine Marina or residents on the south side of the lake who desire beach access. These residents would have to drive additional miles and spend additional time on the road to cross Folsom Lake for their recreation activities. Weekday visitors could travel on Folsom Dam Road during the 3-hour periods of operation in the mornings and afternoon/evenings, but the added wait associated with inspections could deter some people from making this trip. The majority of recreation use occurs after peak congestion periods, such as in the evenings or on weekends. However, evening use of the SRA often coincides with afternoon/evening peak commute periods on weekdays, according to the CDPR. Users who visit during this time could benefit from the Preferred Alternative—Restricted Access Alternative 2, but the overall benefit would be less than under the No Action Alternative due to potential delays related to vehicle screening and inspections.

Residents on the west side of Folsom Lake typically trailer their boats and launch at the closest facilities, Beal's Point or Granite Bay. In addition, the majority of people who moor their boats at the marina have chosen to do so because they do not want to trailer their boats and typically live in communities east of Folsom Lake such as Placerville, El Dorado Hills, Georgetown, and Cool. Nearby residents that do not need to cross the lake would not be affected by the closure of Folsom Dam Road. However, some facilities, such as the beach areas and group picnic areas at Beal's Point and Granite Bay, do not have comparable recreational facilities across the lake. Residents who use these facilities would be affected by increased travel times to cross the lake on weekends and nonpeak weekday hours. Under the Preferred Alternative—Restricted Access Alternative 2, residents would be able to use Folsom Dam Road to cross the lake during peak weekday hours, but the reduction in travel times would be less than under the No Action Alternative due to inspection-related delays.

Other recreation users at Folsom Lake come predominantly from the defined Sacramento River Region (90 percent). This region is expansive and stretches from Lake Shasta in the north to the Sacramento–San Joaquin River Delta in the south (Reclamation 1997e). Within this larger region, approximately 10 percent of all recreation use (measured in visitor use days) occurs at Folsom Lake (Reclamation 1997e). Folsom Lake SRA personnel noted that there appeared to be no change in recreation use of the SRA during the 2004 season due to the road closure, even though user fees had also increased. This scenario is anticipated to continue under the Preferred Alternative—Restricted Access Alternative 2.

Water-related activities at Lake Natoma would be unaffected under the Preferred Alternative—Restricted Access Alternative 2 because visitors to Lake Natoma come primarily from Sacramento and would not have to cross Folsom Dam Road to access the recreation facilities. The traffic level of service (LOS) at the Riley Street Crossing (Rainbow Bridge) near the recreation facilities at Negro Bar was F (the worst level) prior to the road closure (see Section 3.1). Under the Preferred Alternative—Restricted Access Alternative 2, this condition is

projected to continue in study years 2005 and 2013 (see Tables 3.1-5 and 3.1-9). Therefore, while traffic and congestion may be at levels unacceptable to some recreationists, the closure of Folsom Dam Road on weekends and nonpeak weekday hours would not adversely affect recreation use at Lake Natoma.

Whitewater rafting would largely be unchanged under the Preferred Alternative—Restricted Access Alternative 2 because recreationists would decide to go to either the South Fork (via U.S. Highway 50) or North and Middle Forks of the American River (via Interstate 80) prior to the trip. Most whitewater trips are led by commercial outfitters who often meet the trip participants at off-site locations and use a van or bus to get to the planned put-in and take-out accesses. The outfitters are familiar with the timing of river releases and would not need to change their planned routes. Therefore, because they would have planned to use either US-50 or Interstate 80 for their trips, they would be unlikely to be affected by the Preferred Alternative—Restricted Access Alternative 2.

As the analysis demonstrates, local recreation users would be inconvenienced by the limited hours of operation of Folsom Dam Road and potential inspection-related delays under the Preferred Alternative—Restricted Access Alternative 2, compared to the No Action Alternative. A minimal negative effect on water-related recreation activities would occur. However, statistical records indicate that, on a regionwide basis, there would be no change to the use of recreational facilities in the area.

Under the No Action Alternative, there is an increased risk of dam failure. If dam failure occurs, it would also close down Folsom Dam Road and recreational resources in the area. The Preferred Alternative—Restricted Access Alternative 2 reduces this risk.

Land-Based Recreation

The land-based recreation facilities that could be affected by the Preferred Alternative—Restricted Access Alternative 2 include campgrounds, day use areas, and trails. Granite Bay and Beal's Point campgrounds in the Folsom Lake SRA are accessible from the west side of the lake. The local residents that live close to Folsom Lake on the east side and want to camp at the lake could be affected by the weekend and nonpeak weekday closure of Folsom Dam Road because it would take them longer to get to the west side. Most campground use is on the weekends when the road would be closed, but weekday peak-hour visitors could travel on Folsom Dam Road to use trails and day use facilities if they had time to undergo inspections. Local residents are not that likely to camp at the lake because they could just as easily return home. Other visitors coming from outside of the local region could plan their route to avoid the Folsom Dam Road area.

~~A possibility exists that the permanent road closure could increase pressure on existing trails and day use facilities because use could concentrate at current facilities instead of dispersing more easily with the road open. This could degrade the environment or even cause new facilities to be built, but this effect is more likely a factor of growth in the area rather than the road closure. Therefore, this would not be considered an adverse impact relative to the No Action Alternative.~~

Regional Effects from Partial Road Closure

Under the Preferred Alternative—Restricted Access Alternative 2, Folsom Dam Road from Auburn-Folsom Road to East Natoma Street would be closed to public access on weekends and nonpeak weekday hours. This could affect some recreation use in the region because some

visitors that would have gone to Folsom Lake SRA might go to other reservoirs, such as Jenkinson Lake, Ice House Reservoir, Union Valley Reservoir, and Loon Lake Reservoir along Highway 50 or Lake Spaulding, Donner Lake, and Stampede Reservoir along Interstate 80. However, current records do not indicate that the complete closure of Folsom Dam Road has had any adverse impact on regional use of Folsom's recreational facilities. Therefore, partial closure of the road (on weekends and nonpeak weekday hours) would not be expected to adversely affect regional use of Folsom Lake SRA.

3.8.2.3 Restricted Access Alternative 3

Water-Related Recreation

Restricted Access Alternative 3 would have primarily the same access effects as the Preferred Alternative—Restricted Access Alternative 2. The only difference between the effects of Restricted Access Alternative 3 and the Preferred Alternative—Restricted Access Alternative 2 would be based on the amount of time that each alternative would allow access on Folsom Dam Road (two 2-hour periods and two 3-hour periods per weekday, respectively). A minimal negative effect on water-related recreation activities would result from Restricted Access Alternative 3. Relative to the No Action Alternative, there would not be a noticeable change in impacts to use of water-related recreation.

Land-Based Recreation

As with the Preferred Alternative—Restricted Access Alternative 2, Granite Bay and Beal's Point campgrounds in Folsom Lake SRA are accessible from the west side of the lake so they would be unaffected by the closure of Folsom Dam Road under Restricted Access Alternative 3. Again, most of the campground use is on the weekends when the road would be closed, but weekday visitors could travel on Folsom Dam Road to use trails and day use facilities if they had time to undergo inspections. Relative to the No Action Alternative, there would not be an incremental adverse effect to land-based recreation under Restricted Access Alternative 3.

Regional Effects from Partial Road Closure

As with the Preferred Alternative—Restricted Access Alternative 2, partial closure of the road (on weekends and nonpeak weekday hours) would not be expected to adversely affect regional use of Folsom Lake SRA.

3.8.2.4 Long-Term Closure Alternative

Water-Related Recreation

Under the Long-Term Closure Alternative, access to water-related recreation facilities would continue to be hampered by the Folsom Dam Road closure, but most effects would be to local residents on the north side of the lake who moor their boats at Brown's Ravine Marina or residents on the south side of the lake who desire beach access. These residents have to drive additional miles and spend additional time on the road to cross Folsom Lake for their recreation activities. Traffic congestion and delays during peak hours would likely dissuade those users from attempting these types of trips during peak congestion periods. T~~However, t~~he majority of recreation use occurs after peak congestion periods, such as in the evenings or on weekends. However, evening use of the SRA often coincides with afternoon and evening traffic congestion

periods on weekdays, according to the CDPR. Closure of Folsom Dam Road would continue to affect these local users, ~~but~~ and the effects would ~~be minimal because of~~depend on the typical timing of recreation use. The impacts would be minimal to users who typically take advantage of recreational facilities during weekends or nonpeak hours. Impacts to those whose recreational activities coincide with peak congestion times, however, would be greater.

Residents on the west side of Folsom Lake typically trailer their boats and launch at the closest facilities, Beal's Point or Granite Bay. In addition, the majority of people who moor their boats at the marina have chosen to do so because they do not want to trailer their boats and typically live in communities east of Folsom Lake such as Placerville, El Dorado Hills, Georgetown, and Cool. Nearby residents that do not need to cross the lake would not be affected by the closure of Folsom Dam Road. However, some facilities, such as beach areas and group picnic areas at Beal's Point and Granite Bay, do not have comparable recreational facilities across the lake. Residents who use these facilities would be affected by increased travel time to cross the lake.

As with the Preferred Alternative—Restricted Access Alternative 2, recreational use of Folsom Lake SRA among nonresidents is not expected to change. Folsom Lake SRA personnel noted no change in recreation use of the SRA during the 2004 season due to the February 2003 road closure, and this scenario is anticipated to continue under the Long-Term Closure Alternative. Additionally, water-related activities at Lake Natoma and whitewater rafting would not be affected by the Long-Term Closure Alternative for the same reasons outlined under the Preferred Alternative—Restricted Access Alternative 2.

As the analysis demonstrates, local recreation users would be inconvenienced under the Long-Term Closure Alternative. However, statistical records indicate that, on a regionwide basis, there would be no change to the use of recreational facilities in the area.

Under the No Action Alternative, there is an increased risk of dam failure. If dam failure occurs, it would also close down Folsom Dam Road and recreational resources in the area. The Long-Term Closure Alternative would minimize this risk.

Land-Based Recreation

Campgrounds, day use areas, and trails could also be affected by the Long-Term Closure Alternative. Local residents who live on the east side of Folsom Lake and want to camp on the west side would experience increased travel times due to the closure of Folsom Dam Road. However, these residents are unlikely to camp at the lake because they could just as easily return home. Other visitors coming from outside of the local region could plan their route to avoid the Folsom Dam Road area.

~~A possibility exists that the permanent road closure could increase pressure on existing trails and day use facilities because use could concentrate at current facilities instead of dispersing more easily with the road open. This could degrade the environment or even cause new facilities to be built, but this effect is more likely a factor of growth in the area rather than the road closure. Therefore, this would not be considered an adverse impact relative to the No Action Alternative.~~

Regional Effects from Continued Road Closure

Under the Long-Term Closure Alternative, Folsom Dam Road from Auburn-Folsom Road to East Natoma Street would be permanently closed to public access. This could affect some recreation use in the region because some visitors that would have gone to Folsom Lake SRA might go to other reservoirs, such as Jenkinson Lake, Ice House Reservoir,

Union Valley Reservoir, and Loon Lake Reservoir along Highway 50 or Lake Spaulding, Donner Lake, and Stampede Reservoir along Interstate 80. However, current records do not indicate that the closure of Folsom Dam Road has had any adverse impact on regional use of Folsom's recreational facilities.

3.8.3 Mitigation

3.8.3.1 No Action Alternative

No adverse effects would occur directly as a result of reopening Folsom Dam Road to pre-February 2003 conditions. However, reopening the road would increase the risk for potential dam failure. If this happens, there would be losses to recreational resources. No mitigation is recommended.

3.8.3.2 Preferred Alternative—Restricted Access Alternative 2

No mitigation is required for the Preferred Alternative—Restricted Access Alternative 2.

3.8.3.3 Restricted Access Alternative 3

No mitigation is required for Restricted Access Alternative 3.

3.8.3.4 Long-Term Closure Alternative

The Long-Term Closure Alternative could inconvenience some users of recreational facilities, although current information does not indicate any overall decline in use. No mitigation is proposed. However, the CDPR has recommended contribution to recreational facilities if this alternative is selected. This recommendation could be considered if the alternative is pursued and statistical records show an adverse change in visitor use or accessibility that supports the recommended mitigation. ~~Mitigation to reduce inconveniences to local recreationists could include building additional facilities on either side of the lake to accommodate the types of recreation in greatest demand, which would include all water-related activities, such as boating and swimming. However, continued growth would likely fuel congestion and the mitigation benefits may not be sustained. Therefore, no mitigation is recommended.~~

~~No mitigation would be required for land-based recreation due to the effects of the Long-Term Closure Alternative.~~

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3.9.1 Affected Environment

Cultural resources include archaeological and historical objects, sites and districts; historic buildings and structures; cultural landscapes; and sites and resources of concern to local Native Americans and other ethnic groups. Historic properties are cultural resources that are listed on, or eligible for inclusion in, the National Register of Historic Places.

3.9.1.1 Historical Setting

Prehistory

The Sacramento Valley has been occupied by humans for at least 5,000 years. Archaeological investigations have identified a series of cultural horizons that, with subregional variations, were widespread over much of Central California in prehistoric times. These are characterized throughout time by hunting and gathering subsistence strategies. Chronological variations in diet, and particularly with the advent of reliance on acorns and increased use of anadromous fish, are variously attributed to changing technologies, changing environmental conditions, and subsistence pressure resulting from population growth. Burial types and associations, particularly shell bead and ornament types, have proven to be good chronological and typological indicators. Obsidian hydration also has been useful in comparative chronological placement of sites within the region. The reader is referred to Heizer (1978) and Moratto (1984) for more in-depth discussions of the prehistory of the region.

Ethnography

Prior to contact by Euroamericans, the Native American population that occupied the Folsom Dam area was known as Nisenan (or Southern Maidu). The territory of the Sacramento Valley Nisenan included the river-plain of eastern Sacramento. Nisenan villages varied a great deal in size with a large village containing from 40 to 50 houses and over 500 people (Kroeber 1925). Structures occurring within these villages typically included brush shelters, sweat houses, acorn granaries, and a central dance house. The Nisenan were divided into political entities within their territory, which encompassed many village community or tribelet areas (Wilson and Towne 1978). Their diet consisted of many types of game including deer, elk, antelope, rabbits, and quail. Fish were an important dietary staple including salmon, trout, perch, eels, and sturgeon that were harpooned, hooked, trapped, or killed with poison. Most Sacramento Valley groups followed a seasonal or yearly gathering cycle that covered both low lands and hill country in order to exploit acorns and a wide range of other plants, seeds and roots (Kroeber 1925 in Moratto 1984). Baskets were an important aspect of the material culture of the Nisenan and had such diverse uses as storage, cooking and processing, gathering, hunting traps, cages and cradles.

Although not directly impacted by the Spanish and Mexican colonization of California, the introduction of new diseases carried by early settlers had severe consequences for the Nisenan. With the huge influx of settlers during the Gold Rush, the traditional hunting, collecting, and fishing areas and often their village sites were disrupted.

History of Folsom

Portions of the following information on the history of Folsom have been compiled from the Folsom Historical Society (www.historicfolsom.com).

Jedediah Strong Smith was the first person of European descent to explore the region, camping in the Folsom area with a company of trappers in April 1827. In the 1930s other trappers followed his steps hunting beavers along the American River. In 1844, California Governor Manual Michaeltorena granted this territory to William Alexander Leidesdorff, a San Francisco hide and tallow trader. The land grant included 35,000 acres of land known as Rancho Rio de Los Americano. Folsom was part of that land grant. With the discovery of gold in 1848, the Folsom area saw the rise in development of several communities. One of the earliest mining camps established was Mormon Island, located at the juncture of the north and south forks of the American River. By 1853, Mormon Island boasted a population of 2,500. Eventually, the completion of the railroad to the town of Folsom led to the decline of Mormon Island, and by 1880 the town had nearly vanished. This area is now under Folsom Lake. Other developments included Negro Bar, an African-American mining camp that was located near the site of present-day Folsom.

Today the site of Negro Bar is under the waters of Lake Natoma (Hoover et al. 1966). The town of Folsom began in 1855 when Joseph Libby Folsom, a captain in the U.S. Army, arrived in San Francisco and became interested in acquiring California land with the promise of gold. Folsom hired Theodore Judah and two other engineers to survey the land near the mining camp of Negro Bar for a railway and a township to be called Granite City. Folsom died in 1855 before he could see the development of his property; however, in February 1856, the Sacramento Valley Railroad completed its first train trip from Sacramento to the new town of Folsom, renamed from Granite City to Folsom in his honor. Eventually the railroad became the oldest link in the western line of Southern Pacific, with 21 stage lines to carry the traffic to and from the northern mines and the Comstock Lode at Virginia City, Nevada.

With the arrival of the railroad, Folsom prospered as a transportation hub. Stage and freight lines running to communities throughout the Gold Country met the train in Folsom. With the discovery of the Comstock Lode in 1859, Folsom became the principal point of shipment of supplies to these mines. During the 1860s, visitors and residents of Folsom came from around the world, and the town had one of the largest Chinese populations on the West Coast.

Folsom saw significant developments in subsequent years. In 1880, Folsom Prison was established as the second penitentiary in the State. The Folsom Powerhouse completed one of the first commercial transmissions of electricity over a long distance (22 miles) on July 13, 1895, when electricity was sent to Sacramento. (The first long-distance transmission line was completed in Bodie, California, in 1892). The Folsom Powerhouse remained in operation until 1952. Early gold mining methods were replaced by dredges that extracted millions of dollars of gold from the Folsom area. The Natomas Water and Mining Company operated dredges in Folsom from the 1850s to the 1960s, greatly influencing the development of this community.

History of Folsom Dam

Folsom Dam is located 20 miles upstream on the American River from Sacramento. Construction began on Folsom Dam and Powerplant and Nimbus Dam in 1952. Work on Folsom Dam was supervised by the U.S. Army Corps of Engineers (USACE), and work on the Folsom Power Plant and Nimbus Dam and Power Plant was supervised by Reclamation. The construction of Folsom Dam and Lake alone affected some 142 parcels of land, and 51 structures had to be moved or torn down. All work on Nimbus Dam and Power Plant, located 6 miles downstream from Folsom Dam and Power Plant, was completed and accepted by the government

in July 1955, and by early 1955, work on Folsom Dam had reached a point where water storage was possible. On May 5, 1956, Folsom Dam and Lake were officially dedicated, and on May 14, the dam was transferred by the USACE to Reclamation for operation and maintenance. Folsom Dam first provided downstream flood protection during the floods of 1955 and has since worked in combination with Nimbus Dam to provide water storage, power generation, flood control, and recreation.

Previously Recorded Cultural Resources

A review of previously recorded cultural resources adjacent to the project area revealed three prehistoric resources within 0.25 mile of Folsom Dam:

- WAPA-2 (temporary name) is an isolate bedrock mortar.
- CA-SAC-508 consists of four bedrock mortars in a large rock outcrop.
- CA-SAC-354 is a possible prehistoric temporary village site with compacted midden and lithic scatter.

None of these prehistoric sites has been evaluated for eligibility for the National Register of Historic Places.

Built environment resources include Folsom Dam, which was evaluated in 2000 and determined, in consultation with the State Historic Preservation Officer, to be ineligible for listing in the National Register of Historic Places (Herbert, pers. comm., 2002). The Folsom Substation is part of the Folsom Dam Complex and was built circa 1955. Based on its age, the substation does not qualify as a historic resource.

Native American Consultation

Because the Long-Term Closure Alternative is confined to Folsom Dam Road, or immediately adjacent to the roadway, no formal Native American consultation has been conducted for this evaluation as a low potential exists for impacts of specific concern to the Native American community under this alternative. However, should one of the other action alternatives ultimately be selected, members of the Native American community would be consulted as part of Reclamation's compliance with Section 106 of the National Historic Preservation Act.

3.9.1.2 Regulatory Setting

The Federal government formally recognized the importance of certain cultural resources with passage of the 1906 Antiquities Act, 16 United States Code (USC) 431 et seq. In 1966, Congress passed the National Historic Preservation Act, which required all Federal agencies to assess the effects of any agency-sponsored undertaking on cultural resources. Under the National Environmental Policy Act (NEPA) (42 USC) Sections 4321–4327, Federal agencies are required to consider potential environmental impacts and appropriate mitigation measures for projects with Federal involvement. Reclamation, as lead Federal agency, is responsible for project compliance with Section 106 of the National Historic Preservation Act and its implementing regulations, set forth by the Advisory Council on Historic Preservation at 36 Code of Federal Regulations (CFR) 800. These comprise the primary cultural resources regulatory framework for the proposed action. A complete list of the Federal laws, regulations and guidance that direct Reclamation cultural resources policies and responsibilities is found in Reclamation's Directives and Standards Manual LND 02-01 for Cultural Resources Management.

Reclamation Cultural Resources Guidelines

Project undertakings under Reclamation jurisdiction must adhere to the following Section 106 cultural resources directives and standards manuals:

- Policy (LND P01)
- Directives and Standards: Cultural Resources Management (LND 02-01)
- Directives and Standards: Inadvertent Discovery of Human Remains on Reclamation Lands (LND 07-01), which applies only if the project takes place on Federal lands

Federal Regulations Pertaining to Native Americans

The American Indian Religious Freedom Act, 42 USC 1996, has been established to protect religious practices, ethnic heritage sites, and land uses of Native Americans. The Native American Graves Protection and Repatriation Act (1990), 25 USC 3001 et seq., defines cultural items, sacred objects, and objects of cultural patrimony and establishes ownership hierarchy for remains found on Federal lands. It also provides for specific case review, allows excavation of human remains, stipulates return of the remains according to ownership, sets penalties, calls for cultural resource inventories, and has provisions for the return of specified cultural items. The Native American Graves Protection and Repatriation Act is initiated when Native American human remains and/or associated grave goods are situated on Federal lands.

3.9.2 Environmental Consequences

Evaluation Criteria

Four evaluation criteria are identified in 36 CFR 60.4 to determine a resource's eligibility to the National Register of Historic Places, in accordance with the regulations outlined in 36 CFR 800. Resources meeting one or more of the criteria, listed below, are considered to be historic properties and are given further consideration under the National Historic Preservation Act.

A resource may be eligible as a historic property if it has qualities that are:

- Associated with events that have made a significant contribution to the broad patterns of our history
- Associated with the lives of persons significant in our past
- Distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction
- Known to have yielded, or may be likely to yield, information important in prehistory or history (36 CFR 60.4)

If a resource in the project area was found to have historic value based on these criteria, potential adverse impacts were identified under each alternative. The magnitude and severity of the impact was evaluated by determining whether the qualities that qualify the resource for listing on the National Register of Historic Places or as a traditional cultural property with demonstrated ties to a federally recognized Indian tribe could be compromised.

Regulatory Consultation

Reclamation's Mid-Pacific Office (regional office) is responsible for directing the Federal compliance processes on all undertakings on Reclamation lands or components under Reclamation jurisdiction. Included in the aforementioned guidelines are the procedures for consulting with the State Historic Preservation Officer, federally recognized Indian tribes, historic preservation experts and interested parties in order to consider potential effects to cultural resources.

3.9.2.1 No Action Alternative

Under this alternative, use of Folsom Dam Road would return to pre-2003 closure conditions. Restoring those conditions would not have any direct or immediate impact on cultural resources.

Under the No Action Alternative, there is a greater risk of failure of Folsom Dam because access to Folsom Dam Road would be relatively uncontrolled. Under this alternative, if dam failure occurred, historic resources in the region may be adversely affected. No long-term impacts to prehistoric resources are anticipated.

3.9.2.2 Preferred Alternative—Restricted Access Alternative 2

The Preferred Alternative—Restricted Access Alternative 2 may require construction of inspection facilities at both ends of the dam. However, the nature and extent of the such construction, if required, has not yet been defined, as stated in Section 2.2.2. Most of the areas along the existing road have already been disturbed for construction of the dam and road. It is possible that ground-disturbing activity related to construction could still result in impacts to previously undocumented buried cultural resources. As Folsom Dam itself is not considered eligible for the National Register of Historic Places, the introduction of new built environment features would not pose an impact to Folsom Dam.

Under the Preferred Alternative—Restricted Access Alternative 2, it is unlikely that there would be any incremental impacts to cultural resources as compared to the No Action Alternative. However, because new construction may be required, the risk that cultural resources may be affected is greater than with the No Action Alternative.

3.9.2.3 Restricted Access Alternative 3

Restricted Access Alternative 3 may also require construction of inspection facilities at both ends of the dam. As with the Preferred Alternative—Restricted Access Alternative 2, new built environment features would not pose an impact to Folsom Dam, and incremental impacts to cultural resources would not be likely to occur as compared to the No Action Alternative. However, because new construction may be required, the risk that cultural resources may be affected is greater than with the No Action Alternative.

3.9.2.4 Long-Term Closure Alternative

Under the Long-Term Closure Alternative, the road closure would continue and there would be no construction activities or impacts to cultural resources, meaning that there is no potential to

affect historic properties. Under the Long-Term Closure Alternative, there would be no incremental impact as compared to the No Action Alternative.

3.9.3 Mitigation

3.9.3.1 No Action Alternative

No direct or indirect effects to historic properties are associated with this alternative. Reclamation would not be out of compliance with Section 106 of the National Historic Preservation Act.

3.9.3.2 Preferred Alternative—Restricted Access Alternative 2

There is a potential for impacts to previously unrecorded buried cultural resources under the Preferred Alternative—Restricted Access Alternative 2. If this alternative is selected in the Record of Decision, Reclamation will comply with Section 106 of the National Historic Preservation Act and proceed to define the area of potential effects and identify any significant cultural resources (historic properties), pursuant to implementing regulations at 36 CFR 800.4. Reclamation will conduct the appropriate inventories and consult with the State Historic Preservation Officer, as appropriate, once the location of these facilities is identified and the nature and extent of construction activities is known.

Should any historic properties be discovered, Reclamation, in consultation with the State Historic Preservation Officer, will develop appropriate treatment measures to resolve any adverse effects to the identified properties, pursuant to 36 CFR 800.6.

3.9.3.3 Restricted Access Alternative 3

The same mitigation described for the Preferred Alternative—Restricted Access Alternative 2 would apply to Restricted Access Alternative 3.

3.9.3.4 Long-Term Closure Alternative

No new substantive actions would be required to restrict long-term use of the road. Under existing conditions, barricades and security measures are already in place and would not change. Therefore, no mitigation measures for cultural resources are required under the Long-Term Closure Alternative.

During the public scoping process, some participants identified continued access to public services, especially emergency services, as a concern. The City of Folsom provides public services and facilities in the area immediately affected by the Folsom Dam Road Access Restriction alternatives (study area). These services are described in this section.

3.10.1 Affected Environment

3.10.1.1 Schools

The Folsom Cordova School District serves the study area. The City of Folsom has seven public elementary schools, two public middle schools, two public high schools, and four private schools (see Table 3.10-1).

Table 3.10-1
City of Folsom Schools

Grade Level	Name	Address
Elementary School	Blanche Sprentz	249 Flower St., Folsom, CA, 95630
	Carl H. Sundahl	9932 Inwood Road, Folsom, CA, 95630
	Empire Oaks Elementary	1830 Bonhill Dr., Folsom, CA, 95630
	Folsom Hills	106 Manseau Dr., Folsom, CA 95630
	Gold Ridge	735 Halidon Road, Folsom, CA, 95630
	Natoma Station	500 Turnpike Dr., Folsom, CA, 95630
	Oak Chan	101 Prewett Dr., Folsom, CA, 95630
Middle School	Folsom Middle	500 Blue Ravine Road, Folsom, CA, 95630
	Sutter Middle	715 Riley Street, Folsom, CA 95630
High School	Folsom High	1655 Iron Point Road, Folsom, CA 95630
	Folsom Lake High	715 Riley St., Folsom, CA 95630
Private (K – 8)	St. John Notre Dame	309 Montrose Dr., Folsom, CA, 95630
Private (Pre-K, K)	Folsom Montessori	502 Riley St., Folsom, CA 95630
Private (Pre-K – 5)	Phoenix Schools	650 Willard Dr., Folsom, CA 95630
Private (K – 12)	Faith Academy	P.O. Box 926, Folsom, CA 95630

3.10.1.2 Police and Fire Protection

The Folsom Police Department has primary responsibility for public safety throughout the city. The department has a staff of 103, including officers and support staff. The City of Folsom has a low crime rate, and residents' satisfaction with the police services is reportedly high. The police department is located at 46 Natoma Street in Folsom.

Four fire stations serve the City of Folsom: Stations 35 (535 Glenn Drive), 36 (9700 Oak Avenue Parkway), 37 (70 Clarksville Road), and 38 (1300 Blue Ravine Road). Each of the four stations also provides paramedic/advanced life support services. The Emergency Medical Services (EMS) Division participates in a countywide resource deployment plan that ensures the closest

available emergency crew responds to the scene of emergencies, regardless of geopolitical boundaries.

The Fire Department has 71 employees and a service area of 24 square miles. According to the department, it responds to more than 4,500 requests for service annually, an average of 12 per day.

Passage of emergency vehicles is permitted across Folsom Dam Road. This may include local fire and police service vehicles, California Department of Parks and Recreation, California Highway Patrol, etc. Reclamation security staff coordinated with the Folsom Fire Department regarding emergency access at the time the road was first closed (Bishop, personal communication 2004).

3.10.1.3 Hospitals

The City of Folsom has three primary medical care facilities. Other hospitals in nearby cities also serve Folsom residents based on their proximity. The medical care facilities in Folsom are:

- Folsom Convalescent Hospital
  510 Mill Street
  Folsom, CA 95630
- Mercy Hospital of Folsom
  1650 Creekside Drive
  Folsom, CA 95630
- Vencor Hospital / Kindred Hospital Sacramento
  223 Fargo Way
  Folsom, CA 95630

3.10.2 Environmental Consequences

This section discusses the potential public service and safety impacts that would result from each of the four Folsom Dam Road Access Restriction alternatives.

3.10.2.1 No Action Alternative

Under the No Action Alternative, no short-term changes in public services availability from pre-2003 conditions are anticipated.

Reclamation has determined that relatively unrestricted access across Folsom Dam Road is an unacceptable risk with respect to public safety. Failure of Folsom Dam would create substantial impacts to public services and facilities, both short-term and long-term (until the facility could be restored). Both emergency services and public facilities/services would be impacted if the dam fails.

3.10.2.2 Preferred Alternative—Restricted Access Alternative 2

Although Folsom Dam Road has been closed to commuter traffic since February 2003, it has remained accessible for police, fire, and ambulance vehicles responding to emergencies. Under

the Preferred Alternative—Restricted Access Alternative 2, other types of vehicles would also be allowed to use the road for 3-hour periods in the mornings and afternoon/evenings, Monday through Friday, and would be subject to inspection. However, the Preferred Alternative—Restricted Access Alternative 2 would allow emergency vehicles to use Folsom Dam Road at all times. No direct impacts to emergency access would occur.

According to the Folsom police and fire departments, following the closure of Folsom Dam Road they observed an increase in accidents and a reduction in average emergency response times within the City of Folsom (traffic accidents are discussed in Section 3.1.1.3, "Accident Data"). The City of Folsom Police Department has also submitted information on reported incidents and staff overtime spent responding to additional calls, incidents, or traffic management needs since the closure of the road. As noted in Section 3.1.1, increased traffic congestion can be associated with an increase in traffic accidents. Factors contributing to local congestion include existing (No Action) traffic levels that were functioning at low levels of service prior to the February 2003 road closure, the closure of Folsom Dam Road, and, on some roads, the Folsom Historic District Traffic Calming Program; each factor affects congestion to varying degrees depending on the location. Closure of Folsom Dam Road on weekends and nonpeak weekday hours under Preferred Alternative—Restricted Access Alternative 2 would continue to impact some project area roadways, as will continued growth in traffic and congestion related to land use development. Longer-term records of post-closure accident rates may confirm whether a sustained trend exists.

Public comments received during the scoping period and public comment period indicate that travel patterns to and from schools and community activities are also delayed by increased traffic congestion. These delays would vary depending on the origin and destination of the trip, time of day, and day of the week. Delays due to traffic congestion also affect response times for emergency events as well as travel for school, work, or events. Traffic conditions have been identified in this study as generally poor (already below the city's LOS C criteria) at the key roads and intersections evaluated, and are further adversely impacted with the Folsom Dam Road closure and along some arterials by the Folsom Historic District Traffic Calming Program. Under the Preferred Alternative—Restricted Access Alternative 2, levels of service on some roadway segments and intersections would improve compared with the Long-Term Closure Alternative, but to a lesser extent than with the No Action Alternative. The cumulative delays in traffic would impact but not prevent access to community services and facilities on weekends and during nonpeak weekday travel times.

Under the No Action Alternative, relatively uncontrolled access to Folsom Dam Road would increase the risk of a potential dam failure, thereby posing a risk to public safety. If a dam failure occurs, public facilities/services and emergency services would be impacted in and around the project area. The Preferred Alternative—Restricted Access Alternative 2 would reduce the risk to public safety associated with a potential dam failure by limiting road access.

3.10.2.3 Restricted Access Alternative 3

Access for emergency vehicles would be the same as under the Preferred Alternative—Restricted Access Alternative 2. Although Restricted Access Alternative 3 would also allow public access to Folsom Dam Road for two 2-hour periods per day from Monday to Friday, emergency vehicles would have access to Folsom Dam Road at all times. The effect on emergency response

times would vary based on routes taken by emergency vehicles for specific incidents, but congestion reduction would only be slightly reduced in comparison to the other alternatives.

Restricted Access Alternative 3 would reduce the risk to public safety associated with a potential dam failure by limiting road access.

3.10.2.4 Long-Term Closure Alternative

Following the February 2003 closure, Folsom Dam Road has remained accessible for police, fire, and ambulance vehicles responding to emergencies. Thus, the Long-Term Closure Alternative retains Folsom Dam Road as an emergency vehicle response route between Folsom-Auburn Road and East Natoma Street, as does the No Action Alternative. No direct adverse impacts to emergency response times would result due to access across the dam, in comparison to the No Action or other alternatives.

A long-term closure of Folsom Dam Road would continue to impact some project area roadways, as will continued growth in traffic, congestion related to land use development, and other factors. As noted in Section 3.10.2.2, delays due to traffic congestion affect response times for emergency events as well as travel for school, work, or events. The cumulative delays in traffic would adversely impact but not prevent access to community services and facilities at peak-hour travel times. Effects on emergency response times would depend on the destination and vary on a case-by-case basis.

Under the No Action Alternative, relatively uncontrolled access to Folsom Dam Road would increase the risk of a potential dam failure, thereby posing a risk to public safety. If a dam failure occurs, public facilities/services and emergency services would be impacted in and around the project area. The Long-Term Closure Alternative minimizes this risk to public safety.

3.10.3 Mitigation

Impacts of increasing travel time within Folsom potentially associated with different routes that residents must take following the closure of the road, or caused by increased congestion from the cumulative actions noted above, can be partially improved with the traffic mitigation measures described in Section 3.1.3. In particular, the implementation of an Automated Vehicle Locator system, a tracking and response recommendation system that works in conjunction with dispatch software, would further improve the movement of traffic and emergency response vehicles when implemented jointly with an Intelligent Transportation System Plan. However, even with those measures, congestion and travel time differences (delays) between pre- and post-closure of Folsom Dam Road and the Folsom Historic District Traffic Calming Program would remain with each of the alternatives. Further mitigation to restore this connection is not feasible without selection of one of the alternatives. For example, the Preferred Alternative—Restricted Access Alternative 2 and Restricted Access Alternative 3 would make Folsom Dam Road available during weekday peak periods. This option, however, would have its own delays resulting from the required vehicle inspections. The No Action Alternative would restore Folsom Dam Road to unrestricted use. A separate project, the ~~Folsom Dam Bypass~~Folsom Bridge Project, would also provide an approximately equivalent connection when completed (scheduled for 2007/2008).

3.11.1 Other Environmental Resource Issue Areas

The impact analysis for this Environmental Impact Statement (EIS) focused on the resource areas likely to be affected by the Folsom Dam Road Access Restriction alternatives. Input from scoping was also used to define the study areas addressed. As explained below, no potential effects were foreseen or identified for land use, geology and seismic hazards, visual resources, or hazardous materials.

- **Land Use.** No changes to existing land use designations or zoning would be required for any of the alternatives. Although new construction would be required for the Preferred Alternative—Restricted Access Alternative 2 and Restricted Access Alternative 3, the proposed inspection stations would be located entirely within Reclamation property and would not be inconsistent with the land use in the area.
- **Geology and Seismic Hazards.** No changes to the geologic conditions or vulnerability to seismic hazards would result from any of the alternatives analyzed in this EIS. For the construction of inspection stations under the Preferred Alternative—Restricted Access Alternative 2 and Restricted Access Alternative 3, geologic or foundation studies may need to be conducted and new structures would have to comply with the appropriate building codes and regulations.
- **Visual Resources.** More visible traffic congestion would result on certain roadways (identified in Section 3.1) under the Preferred Alternative—Restricted Access Alternative 2, Restricted Access Alternative 3, and the Long-Term Closure Alternative. However, this is not an adverse visual impact because these roadways were designed for vehicular traffic and views of the road and surrounding area already include traffic.
- **Hazardous Materials.** No exposure to hazardous materials would result from the implementation of any of the alternatives. Prior to the initiation of any construction activities related to the Preferred Alternative—Restricted Access Alternative 2 and Restricted Access Alternative 3, a hazardous materials survey would have to be conducted to ensure that no contamination exists in the area.

3.11.2 Related Projects and Associated Cumulative Impacts

Cumulative impacts are defined as:

> …[T]he impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Several other projects or actions have occurred or are planned at or in the vicinity of Folsom Dam. These projects are described below, with an emphasis on potential cumulative impacts related to the Folsom Dam Road Access Restriction alternatives.

3.11.2.1 Lake Natoma Crossing

Completed in 1999, this bridge provided a second crossing of the American River at Lake Natoma, which had been limited to the nearby historic Rainbow Bridge. The EIS for the Lake Natoma Crossing project identified unavoidable significant impacts, including impacts to the natural environment in the vicinity of the bridge, changes in views, accommodation or acceleration of growth, and disturbance to a historic site. None of these effects in the Lake Natoma area would be additionally impacted by the Folsom Dam Road Access Restriction alternatives. However, roadway segments that were adversely affected by the Lake Natoma Crossing were identified as Folsom-Auburn Road from Folsom Dam Road to Greenback Lane and Folsom Boulevard from Leidesdorff Street to U.S. Highway 50 (US-50). Opening of the bridge improved access through the city but also impacted the levels of service on these primary arterials. Based on traffic counts from 2002, these roadways are functioning at Level of Service (LOS) D and F, respectively, after the opening of the Lake Natoma Crossing. These roadway segments are also cumulatively affected by the Folsom Dam Road Access Restriction alternatives, adding approximately 600 vehicles per day to Folsom Boulevard and between 500 and approximately 3,000 vehicles per day to Folsom Boulevard in the year 2005, depending on the alternative. Thus, levels of service on these segments that were already significantly impacted by the Lake Natoma Crossing would continue to be impacted under the Preferred Alternative—Restricted Access Alternative 2, Restricted Access Alternative 3, and the Long-Term Closure Alternative.

3.11.2.2 Folsom Historic District Traffic Calming Program

Following the closure of Folsom Dam Road, the City of Folsom devised and implemented local traffic control measures to limit or divert traffic away from specific streets and neighborhoods, especially within or surrounding the city's historic district. The effects of this program are discussed in Section 3.1.1.3 and shown in Tables 3.1-2 and 3.1-3 and Figures 3.1-5 and 3.1-6. The program benefits some certain streets and roads by controlling or preventing high levels of traffic from impacting some neighborhoods. However, some traffic was diverted to other main roads as a result. Both the Rainbow Bridge (Riley Street) and Lake Natoma Crossing (Folsom Boulevard) had very low levels of service (i.e., LOS ratings of F and D, respectively) before the Folsom Dam Road closure. Traffic was diverted to these roadways by both the Folsom Dam Road closure in 2003 and by the traffic calming program.

3.11.2.3 Folsom Bridge Project

Construction of a temporary bridge across the American River was authorized as part of the American River Watershed Project Folsom Dam Raise, a U.S. Army Corps of Engineers (USACE) project (discussed further in Section 3.11.2.5). The temporary bridge was later changed to a permanent bridge, conditional on funding, by the Energy and Appropriations Act of 2004 (Public Law 108-37). The potential future condition that necessitated the temporary bridge was that Folsom Dam Road would have to be closed to the public traffic during the dam raise construction. It was assumed that the road would be reopened to traffic after dam construction was completed.

This project, now referred to as the Folsom Bridge Project, would involve ~~the U.S. Army Corps of Engineers (USACE) has recently pursued~~ the construction of a two- to four-lane bridge and roadway downstream of Folsom Dam and upstream of Rainbow Bridge~~the bridge and roadway as an independent project~~. ~~This project is referred to here as the Folsom Dam Bypass. The project includes the construction of a two- to four-lane bridge and roadway downstream of Folsom Dam and upstream of Rainbow Bridge.~~ The bridge and road would connect Folsom-Auburn Road with East Natoma Street. Assuming approval, the USACE is currently evaluating the alternatives and design under a separate EIS. The bridge and roadway are scheduled to open in 2007/2008. With the closure of Folsom Dam Road, there has been strong interest in moving this project forward.

~~As shown in the Lake Natoma Crossing EIS, t~~The primary effects of the bridge alternative relate to traffic conditions, air quality, and noise. The traffic analysis for the Folsom Dam Road Access Restriction (Section 3.1) assumed that the bridge and connecting roadway would be in place by the 2013 study year discussed in this EIS. The resulting traffic conditions with the bridge in place were also used for the evaluations of air quality and noise (Sections 3.2 and 3.3).

3.11.2.4 Folsom Dam Outlet Modification

Record high flood flows in 1986 in the American River basin combined with similarly high flows from the Sacramento River caused water levels to rise above safe levels in the Sacramento area. As a result, new flood control measures were developed for the Folsom Dam structure and related outlet facilities to provide additional flood protection against future events. Improvements included enlarging the eight existing river outlets, constructing two additional river outlets, and modifying the use of surcharge storage at Folsom Dam. "Surcharge storage" refers to the ability to act on an advanced weather forecast for anticipated high flows by increasing current reservoir releases, allowing the reservoir storage level to be reduced. This action creates additional space to accommodate the anticipated incoming flood volume. With this project, the total outlet capacity would increase from about 30,000 cubic feet per second to approximately 115,000 cubic feet per second. Federal property on the east side of Folsom Dam, which is currently being used for equipment storage, would be the main staging area for heavy equipment and contract work force involved for the construction of the project.

The August 2001 Environmental Assessment/Initial Study for the Folsom Dam Outlet Modification Project identified the need to close Folsom Dam Road for construction (this need was identified prior to the February 2003 road closure). Increased traffic congestion and commuter safety were identified as potential impacts of the project, due to the diversion of traffic and the potential for vehicle conflicts at the construction access road south of the dam. Proposed mitigation for these impacts consisted of providing information about the road closure, signage, and traffic control for the construction vehicles accessing and exiting at the south side of the dam. It is anticipated that construction would begin in 2005 and continue until 2013.

Under the No Action Alternative, therefore, the anticipated closures for project construction would occur. They would include 12 midweek/midday closures, 14 weekend closures, and 50 night closures on Folsom Dam Road. Four of the weekend closures would extend from late Friday night to early Monday morning, while the remaining 10 would take place during the daylight hours of Saturday and Sunday. Construction blasting would be limited to two per day

and road closures during blasting are expected to occur for 15 to 30 minutes. An estimated 500 construction blasts would take place during construction.

Under the Preferred Alternative—Restricted Access Alternative 2, public access to Folsom Dam Road would be allowed for 3-hour periods in the morning and afternoon/evening, Monday through Friday. The anticipated closures of Folsom Dam Road for Folsom Dam Outlet Modification Project construction would occur, but because they are anticipated to take place during nonpeak and weekend hours, the closures are unlikely to coincide with the road's public access periods. No traffic conflicts would occur during nonpeak and weekend hours from the addition of truck traffic from project construction on the roadway. However, construction trucks for the project would periodically need to merge onto East Natoma Street. Under the Preferred Alternative—Restricted Access Alternative 2, the East Natoma Street/Folsom Dam Road intersection is projected to function at LOS C for study year 2005 during peak hours. Slow-turning trucks merging onto East Natoma Street could further impact conditions during the peak morning and afternoon periods, but the cumulative effect would not be substantial unless the truck traffic was frequent. A mitigation measure that was recommended for the project consisted of temporary traffic controls, including a light, for traffic entering Folsom Dam Road. The potential for a cumulative impact due to construction-related traffic could be reduced or avoided by requiring construction truck traffic associated with the Folsom Dam Modification Project to avoid using East Natoma Street during the peak morning and afternoon commute periods. This measure would require a request by Reclamation to the USACE and State Reclamation Board, the co-sponsors for the planning and construction of the project.

As closures of Folsom Dam Road for the Folsom Dam Outlet Modification Project are anticipated to occur during nonpeak and weekend hours, the cumulative impact under Restricted Access Alternative 3 would be the same as under the Preferred Alternative—Restricted Access Alternative 2.

Under the Long-Term Closure Alternative, the addition of truck traffic from project construction would not adversely affect conditions on Folsom Dam Road due to the lack of conflicting traffic. However, construction trucks for the project would periodically need to merge onto East Natoma Street. ~~Since the closure of Folsom Dam Road~~In the study year 2005, the East Natoma Street/Folsom Dam Road intersection is estimated to function~~ing~~ at LOS D at peak hours. As with the Preferred Alternative—Restricted Access Alternative 2, slow-turning trucks merging onto East Natoma Street could further impact conditions during peak periods, but the cumulative effect would not be substantial unless the truck traffic was frequent. Mitigation in the form of temporary traffic controls would not be needed if the Folsom Dam Road closure continues, but a measure requiring construction truck traffic to avoid using East Natoma Street during peak commute periods, as discussed for the Preferred Alternative—Restricted Access Alternative 2, could reduce or avoid cumulative impacts.

3.11.2.5 Folsom Dam Raise

To provide additional downstream flood protection, an increase in the height of Folsom Dam was authorized. This project, part of the American River Watershed Project, would be conducted by the USACE. The height of the dam would be raised by approximately 7 feet, and the wing dams, dikes, and Mormon Island dam would also be raised by 3.5 feet. Parapet walls would be installed.

No additional water supply would be developed as part of this project, and the spillway sill would remain the same. However, new spillway tainter gates would replace existing gates, and the bridge over the gates would be replaced and raised.

The dam raise project includes several environmental restoration components. One of these components is the upgrading and automation of the three existing temperature shutters on the penstocks. Construction work on these is likely to require cranes positioned on top of the dam, which would likely result in some limited and intermittent road closures on Folsom Dam Road under the pre-February 2003 conditions.

Reclamation and USACE have determined that Folsom Dam and Folsom Reservoir dikes cannot safely pass the probable maximum flood. Reclamation is currently undertaking studies to identify the lowest-cost alternative for modifying Folsom Dam to adequately reduce risks. The hydrologic modifications may be included as part of the dam raise. If not, Reclamation would pursue a separate project. In either case, the hydrologic modifications will contribute to additional needs for road closures on Folsom Dam Road under the pre-February 2003 conditions.

Completion of this project would require closing Folsom Dam Road for long periods of time under the No Action Alternative. Under the Preferred Alternative—Restricted Access Alternative 2 and Restricted Access Alternative 3, no adverse cumulative impacts would result because Folsom Dam Road would remain closed during the construction times.

3.11.2.6 Folsom Redundant Water Supply Intake

The Cities of Roseville and Folsom and the San Juan Water District seek a new water supply outlet to provide redundancy to their raw water supply systems. The new outlet would increase reliability, provide water during required maintenance and emergency outages of the existing outlet works, and address some security concerns.

USACE completed an appraisal study in January 2003 and recommended three alternatives to be studied in a feasibility analysis. Environmental studies on these three alternatives are currently being initiated. Depending on the final alternative selected, limited road closures may be required during construction. Although lengthy closures are not anticipated, this could result in an adverse cumulative impact on Folsom Dam Road access under the No Action Alternative. No cumulative effect would take place under the Preferred Alternative—Restricted Access Alternative 2 and Restricted Access Alternative 3.

3.11.2.7 Embankment Dams and Dikes Static Modification

Reclamation will undertake modifications to its dams and dikes. The project is tentatively scheduled for construction beginning in 2007 but may begin sooner. Under the pre-February 2003 conditions and the No Action Alternative, this work will require road closures on Folsom Dam Road and would result in adverse temporary traffic impacts. No cumulative effects are anticipated under the Preferred Alternative—Restricted Access Alternative 2, Restricted Access Alternative 3, and the Long-Term Closure Alternative.

3.11.2.8 Concrete Dam Seismic and Static Modifications

Based on preliminary evaluations, modifications to Folsom Dam will likely be required. However, no decisions have been made regarding these issues. Depending on the alternative(s) identified, road closures on Folsom Dam Road could be required under the pre-February 2003 conditions. In that case, temporary adverse effects could result under the No Action Alternative. No impact is expected under the Preferred Alternative—Restricted Access Alternative 2, Restricted Access Alternative 3, and the Long-Term Closure Alternative.

3.11.2.9 Local and Regional Transportation Projects

A number of improvements to the transportation network have been funded or proposed, ranging from the ~~Folsom Dam Bypass Project~~Folsom Bridge Project discussed above to various widening and intersection improvements and the Folsom light rail corridor construction. These projects are listed and cumulatively evaluated in Section 3.1 for their effects on traffic conditions. The Folsom Dam Road Access Restriction alternatives would not contribute to any cumulative physical environmental impacts with the No Action and Long-Term Closure Alternative, as no construction would be required. The Preferred Alternative—Restricted Access Alternative 2 and Restricted Access Alternative 3 would involve minor construction activities for inspection facilities along Folsom Dam Road, for which no substantial cumulative impacts are predicted.

3.11.3 Relationship Between Short-Term Uses and Maintenance of Long-Term Productivity

The relationship between short-term uses of the environment and the maintenance and enhancement of long-term productivity of the affected resources for the three action alternatives (the Preferred Alternative—Restricted Access Alternative 2, Restricted Access Alternative 3, and Long-Term Closure Alternative) is described below. The affected resources are identified in Table 3.11-1. At issue is whether short-term effects are counterbalanced by long-term effects.

As used here, short-term effects are associated with the changes in traffic patterns that have occurred from the February 2003 indefinite closure of Folsom Dam Road. These are the immediate and direct impacts that have been felt by the community and would continue with traffic congestion and its associated impacts under the Long-Term Closure Alternative. Because of existing and anticipated continued growth in Folsom and in the surrounding areas, these impacts are not expected to go away, with or without any of the alternatives. In some issue areas, the road closure incrementally adds to these existing effects. Mitigation measures are available that can reduce the intensity of some of the impacts over the short term.

Over the long term, the Preferred Alternative—Restricted Access Alternative 2 and Restricted Access Alternative 3 would restrict traffic from using Folsom Dam Road, and the Long-Term Closure alternative would exclude vehicles from Folsom Dam Road entirely. However, future planned projects would reduce the effects of this diversion, including a potential ~~Folsom Dam Bypass Project~~Folsom Bridge Project crossing. A long-term risk and potential risk with adverse environmental and community impacts is the potential for a failure of Folsom Dam. This risk is

the fundamental reason for Reclamation's proposed action for restricted access across Folsom Dam Road. These potential long-term effects are summarized in Table 3-11.

Table 3.11-1
Summary of Short-Term Uses and Maintenance and Enhancement of Long-Term Productivity

Issue Area	Short – Term Uses / Impacts	Long-Term Maintenance & Productivity
Traffic	• Long-Term Closure Alternative shifts traffic. Congestion has increased at some roads and intersections in Folsom from land use growth, closure of Folsom Dam Road, and local traffic management measures. Preferred Alternative -Restricted Access Alternative 2 and Alternative 3 reduce this effect but do not eliminate it.	• Loss of Folsom Dam would have adverse impacts to transportation systems, traffic circulation, and emergency response and evacuation.
Air Quality	• Additional vehicle miles traveled due to diversion of trips would result in more overall vehicle emissions. • Total emission increase would not impair regional air quality conformity.	• Long-term vehicle trips will be primarily offset by addition of other planned projects, primarily ~~Folsom Dam Bypass Project~~Folsom Bridge Project. • Loss of Folsom Dam would impact local and regional travel and goods movement.
Noise	• Existing traffic-generated noise would change less than 2 A-weighted decibels (dBA) at most locations in 2005, which is considered an imperceptible change. • Along one segment, on Natoma Street between Folsom Boulevard and Sibley Street~~street~~, existing traffic noise could ~~change by 2 to 3 dBA~~increase in 2005 under the Long-Term Closure Alternative. In 2013, this segment would experience an increase of up to 2.3 dBA under the action alternatives. No ~~feasible~~ mitigation is ~~available~~proposed.	• No additional long-term impacts.
Water Resources & Supply	• No impact from Long-Term Closure Alternative. • Preferred Alternative—Restricted Access Alternative 2 and Restricted Access Alternative 3 may involve short-term construction and erosion effects from maintenance station construction. These impacts can be mitigated.	• No adverse direct long-term impact from road reopening. • Temporary loss of water supply resources from risk of dam failure.

Table 3.11-1, concluded

Issue Area	Short – Term Uses / Impacts	Long-Term Maintenance & Productivity
Biological Resources	• No impact from Long-Term Closure Alternative. • Preferred Alternative—Restricted Access Alternative 2 and Restricted Access Alternative 3 would involve short-term construction effects. There are no such identified impacts to terrestrial habitat or minor areas of waters of the United States, but this would have to be verified based on final design and plans for the necessary security facilities. These impacts may be avoidable or mitigated.	• Loss of Folsom Dam would result in direct loss of habitat and individual species, including species protected under Federal and State regulations.
Energy and Power Supply	• No short-term effects.	• Loss of Folsom Dam power plant would disrupt contribution to regional and State power generation and supply, and local pumping plant.
Recreation	• Traffic changes may inconvenience local residents' access to Folsom Lake.	• Loss of Folsom Dam and reservoir would affect water-related recreation uses and have a marginal, indirect impact on land-based recreational resource use.
Cultural Resources, Land Use, Visual Resources, Geology and Seismicity, Hazardous Materials	• No short-term effects.	• No long-term impacts.

3.11.4 Irreversible or Irretrievable Commitments of Resources

Irreversible or irretrievable commitments of natural or renewable resources are resources that cannot be recovered, or resources for which the impact cannot be reversed except over a long period of time or at great expense. The Preferred Alternative—Restricted Access Alternative 2, Restricted Access Alternative 3, and the Long-Term Closure Alternative would have limited impact on such resources.

The No Action Alternative and Long-Term Closure Alternative do not involve construction of new facilities that would impact existing natural or renewable resources; these alternatives strictly address whether Folsom Dam Road is fully opened or closed along its existing alignment. These alternatives have different effects on vehicle miles traveled, which relate to the consumption of nonrenewable petroleum fuel sources, but the differences are minor and neither of these two alternatives would noticeably conserve or expend these resources with respect to existing or future conditions.

The Preferred Alternative—Restricted Access Alternative 2 and Restricted Access Alternative 3 would require the addition of inspection stations and potential widening of Folsom Dam Road at the stations to provide room for waiting cars. As with any construction project, adding these facilities near the existing end points of Folsom Dam Road would require irreversible, or at least long-term, changes. Vegetation removal and soil disturbance/grading would be necessary at the construction site.

3.11.5 Indian Trust Assets

Indian Trust Assets are interests in property held in trust by the United States for Native American tribes or individuals. These assets can include lands, minerals, hunting and fishing rights, and water rights. No such assets exist at Folsom Dam; therefore, no impacts would occur.

3.11.6 Environmental Justice

Sections 3.4.1.1 and 3.4.1.2 discuss minority and low-income populations in Sacramento County and Folsom.

Under the No Action Alternative, there is a greater risk of failure of Folsom Dam because access to Folsom Dam Road would be relatively uncontrolled. If dam failure occurred, it would result in the loss of some agricultural land in Sacramento County and may have a temporary impact on the utilization of farm labor in that area.

With regard to environmental justice, there would be no direct impacts to minority or low-income populations from the Preferred Alternative—Restricted Access Alternative 2, Restricted Access Alternative 3, and the Long-Term Closure Alternative as no substantial construction or direct property impacts would result.

3.11.7 Consultation and Coordination

3.11.7.1 Authorization

This EIS has been prepared in compliance with Reclamation's National Environmental Policy Act (NEPA) procedures. The current interim closure of Folsom Dam Road was authorized under a Closure Order.

Following completion of the EIS review process, including public review and comment, Reclamation will complete a Record of Decision. A Record of Decision is prepared as the final decision document, selecting a preferred alternative of the proposed Federal action (which does not necessarily have to be the "Preferred Alternative" identified in Section 2.2.2 and evaluated in this document). The Record of Decision completes the planning and public process as mandated by NEPA.

Section 2 of this EIS describes the proposed alternatives, including a Preferred Alternative. NEPA and Reclamation's procedures provide for identification of a preferred alternative in the EIS. This designation indicates Reclamation's early preference but does not represent a decision on any of the alternatives. A final decision will be made in the Record of Decision after the NEPA review process has been completed.

3.11.7.2 Scoping Process and Summary

The NEPA process requires early and open communication with the public and interested parties, including local governments, to identify environmental issues related to the proposed project. This communication process, or scoping, helps define the human and environmental impacts to be evaluated and addressed in the environmental review documentation process. The scoping process, which is summarized in Appendix A, included the following actions:

- A Notice of Intent (NOI) to prepare an EIS (Bureau of Reclamation NOI 4310-MN-P) was published on April 5, 2004. The NOI also listed the meeting time and places of the two scoping meetings (see Appendix A). The NOI and the presentations at the scoping meetings requested a written list of issues from interested parties.
- A Reclamation Folsom Dam Road Closure EIS Web page was established at http://www.usbr.gov/mp/ccao/roadeis/ with information about the EIS process and an e-mail link to submit written comments to Reclamation.
- Two scoping meetings were conducted, one at the Sacramento Library at the Galleria (828 I Street, Sacramento, CA) on May 26, 2004, and one at the Folsom Community Center (52 Natoma Street, Folsom, CA) on May 27, 2004. These meetings were held to solicit input from the public, interested parties, and agencies on critical environmental issues for the project. Notices for these meetings were announced in local newspapers in advance and published on Reclamation's Folsom Dam Road Closure EIS Web page.

3.11.7.3 Scoping Report

The scoping report describes the scoping process and summarizes the written and verbal comments received from agencies and the public. Two hundred and forty-two comments and a petition with 220 signatures were received as of July 2004. These comments are organized in the scoping report by issue area. Results from the scoping report were used to formulate the focus of the environmental analysis. The scoping report is summarized in Appendix A and available in full on Reclamation's Web site.

3.11.7.4 Permits or Other Actions Required for Implementation

The alternatives considered in this EIS are described in Section 2. No resource or regulatory agency permits would be required for either maintaining the road closure or reopening the road to the conditions in place prior to its closure in 2003. The Preferred Alternative—Restricted Access Alternative 2 and Restricted Access Alternative 3 would require construction or installation of additional security and traffic management measures. If implemented, those measures may require other regulatory approvals or permits, which would have to be obtained following the Record of Decision on this EIS.

3.11.8 Scope of the EIS

The scoping process helped to identify the following key issues that could have adverse impacts, which are addressed in the EIS:

- Traffic and circulation
- Socioeconomics
- Air quality
- Noise
- Recreation

In addition, Reclamation has identified other issue areas, which are also analyzed in this EIS:

- Fish, wildlife, riparian habitat, and vegetation
- Water quality
- Cultural resources
- Groundwater
- Water supply
- Power supply
- Municipal and industrial land uses
- Demographics
- Visual resources
- Public health
- Social well-being
- Power consumption and production
- Cumulative effects

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