

4.3 ENVIRONMENTAL SETTING

Situated within the westernmost extent of the Sierra Nevada Foothills, the park's landscape consists of two reservoirs—Folsom Lake and Lake Natoma—surrounded by rolling oak-studded foothills, upland plateaus and deep river canyons carved by the North and South forks of the American River system. The waters of Folsom Lake and Lake Natoma comprise approximately 70 percent of the total park area. Generally, the reservoirs are surrounded by a relatively narrow, and frequently steep, band of upland area.

The Unit represents a significant resource within the region. As a visual and scenic resource, the Unit's many miles of shoreline coupled with hilly topography create a wealth of viewing conditions and opportunities, including panoramic views and distinctive landscape and built features. The Unit supports nine major vegetation communities typical of the lower foothills of California's Central Valley that provide habitat for a diverse mix of terrestrial and aquatic fauna, including several special status species. The Unit is rich in history spanning more than 4000 years and includes at least 229 archaeological sites.

Refer to Chapter 2.0, Existing Conditions, of this Plan for a description of the existing project area environment, significant resource values, and the local and regional vicinity. A description of the Affected Environment is provided in the discussion of each environmental topic area.

4.4 ENVIRONMENTAL CONSEQUENCES

4.4.1 Assumptions and Methods for Assessing Impacts

The purpose of the EIS/EIR is to identify impacts of the Plan that have the potential for significance and will require more detailed analysis when specific management plans and area development plans are prepared. Impact analyses and conclusions are based on interdisciplinary team knowledge of resources of the project area, reviews of existing literature, and information provided by experts in Reclamation, State Parks and other agencies. Any impacts described in this section are based on the conceptual plan of the project alternatives under consideration and the date and information used for projecting impacts per the existing conditions described in Chapter 2.

Under NEPA, the significance of an impact is determined considering the context in which the impact would occur and the intensity of the action. Significance, therefore, will vary depending upon the setting of the proposed action (40 CFR 1508.27[a]). According to the CEQA Guidelines Section 15382, a significant impact on the environment refers to a “substantial, or potentially substantial adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance.” Significant environmental impacts may be associated with visitor use, facility construction, or rehabilitation, or development projects, and adverse impacts can range from negative visual impacts to degradation of water quality to the disturbance or loss of cultural and natural resources.

Under CEQA, an EIR is required to determine whether impacts of each alternative are significant, and if so, whether identified mitigation measures would reduce those impacts to “less than significant” levels. Therefore, “thresholds” or criteria have been developed to describe levels of impact. Thresholds are standards used to determine if an activity or project will cause or potentially cause, a substantial adverse physical change (significant impact). If the project or activity could exceed a threshold, the impact is considered to be potentially significant.

In order to streamline the environmental analysis and in light of the programmatic and general nature of the General Plan/Resource Management Plan, the environmental consequences associated with implementing the project alternatives (Preferred Alternative, Alternative 3, and Alternative 4) and the No Project Alternative are summarized for each topic area using an impact matrix. The impact matrix identifies the potential effects (high, moderate, low, no impact) by alternative relative to the Parkwide Goals and Guidelines (by

resource) and Specific Area Goals and Concepts (by management zone). These tables are intended to qualitatively describe the potential effects as a stand-alone evaluation. Additional narrative is provided only for impacts that were identified as “high” or “moderate.” Impacts that are considered “high” or “moderate” are evaluated using the CEQA Significance Criteria. The high, moderate, low, and no impact designations are further defined as follows:

- **High** – Implementation of the project alternative is expected to result in significant, adverse impacts that could or could not be mitigated. Impacts from new or expanded facilities in previously undisturbed areas and/or sensitive areas would generally be considered high. A significant increase in development in those areas that have been previously disturbed would also be considered a high impact.
- **Moderate** – Implementation of the project alternative could result in potential significant, adverse impacts. But these impacts can be mitigated to a level below significance. Impacts from new or expanded facilities in areas that have been previously disturbed will generally be considered moderate.
- **Low** – Impacts from implementation of the project alternative are expected to be negligible.
- **No Impact** – No impacts are expected as a result of project implementation.

Where potentially significant impacts are noted, the EIS/EIR identifies “mitigation measures.” If appropriate mitigation can reduce the impact to below the threshold, the impact is then considered less than significant. “Mitigation” is defined as an action or actions that will:

- Avoid a given impact altogether by not taking a certain action or parts of an action;
- Minimize a given impact by limiting the degree or magnitude of the action and its implementation;
- Rectify a given impact by repairing, rehabilitating, or restoring the impacted environment;
- Reduce or eliminate a given impact over time through preservation and maintenance operations during the life of the action; or
- Compensate for a given impact by replacing or enhancing substitute resources or environments (CEQA Guidelines Section 15370).

As discussed above, this Plan is a first tier EIS/EIR and, as such, the description of proposed development, program impacts, and associated mitigation are general in nature. As additional management plans, area development plans, or specific projects are proposed or developed, they will be subject to further environmental review; project-specific mitigation measures will be developed and implemented at that time.

4.4.2 Environmental Effects Found Not to be Significant

As required by NEPA/CEQA, this section presents discussions related to environmental effects found not to be significant, as identified in the Initial Study prepared for the project. As these issues were found not to be significant, they are not further evaluated in this EIS/EIR but are identified and briefly discussed in this section. If the Plan is amended in the future or conditions change, these effects will have to be re-evaluated to ensure that they are still deemed not to be significant.

4.4.2.1 Agricultural Resources

Implementation of the Plan would not convert farmland to nonagricultural use. The project area is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency. Thus, the proposed Plan would not have a substantial adverse effect on agricultural resources.

4.4.2.2 Environmental Justice

The objectives of Executive Order (EO) 12898, Environmental Justice include identification of disproportionately high and adverse health and environmental effects on minority populations and low-income populations that could be caused by a proposed federal action. Accompanying EO 12898 was a Presidential Transmittal Memorandum that referenced existing federal statutes and regulations, including NEPA to be used in conjunction with the EO. The Council on Environmental Quality (CEQ) issued *Guidance Under NEPA* in December 1997 (CEQ 1997). Minority populations include all persons identified by the U.S. Census of Population and Housing to be of Hispanic origin, regardless of race, and all persons not of Hispanic origin other than White. Income levels vary widely in neighborhoods near treatment areas.

No formal, commonly accepted significance criteria have been adopted for Environmental Justice impacts. However, the Presidential Memorandum accompanying the EO directs federal agencies to include measures to mitigate disproportionately high and adverse environmental effects of proposed federal actions on minority and low-income populations. Federal agencies are also required to give affected communities opportunities to provide input into the NEPA process, including identification of mitigation measures. Application of EO 12898 to NEPA documentation suggests two questions should be examined:

- Is a federal project with significant environmental impacts being proposed in a community comprised largely of minority or low-income persons?
- Would any significant adverse human health or environmental effects of the project disproportionately affect minority or low-income persons?

No aspect of the Plan or the Alternatives would result in disproportionately high and adverse human health or environmental effects on minority or low-income populations. Any restrictions on travel or access to areas of the project area that might result from implementation of the Plan would be equally applied to all visitors, regardless of race or socioeconomic standing. Furthermore, none of the alternatives would change current management direction with respect to housing policies in the project area or vicinity. The Plan and project alternatives would not result in the destruction or disruption of community cohesion or separation of minority or low-income populations from the broader community.

4.4.2.3 Mineral Resources

Economical mineral resources have been mined in the region in the past. However no mining is proposed and buildout of the Plan would have no affect on mineral resources. The Plan would not result in the loss of availability of a known valuable mineral resource.

4.4.2.4 Population and Housing

Implementation of the Plan would not include new homes or businesses for the public, and would not require extension of roads and other infrastructure into previously undeveloped areas. Although there is some existing permanent employee housing within the SRA at Nimbus Flat, Granite Bay, and the Peninsula, there is no proposed or existing public housing on the project site. Implementation of the Plan would not result in substantial population growth nor would it displace existing housing or residents.

4.4.2.5 Energy Conservation

The utility infrastructure of the Folsom Lake State Recreation Area (the Unit) consists of both State Parks-owned systems that provide electricity service to Unit facilities, and utility corridors and easements owned by outside companies and agencies. Electric utilities are provided to the Unit by the Sacramento Municipal Utility District (SMUD), Western Area Power Administration (WAPA), and Pacific Gas & Electric (PG&E). Levels and types of service vary for each recreation area. Most areas do not have significant utility constraints. Many are currently receiving service from public utilities or could potentially be connected to public utilities for power. In addition to the electricity that powers recreational and staff facilities, diesel and gasoline fuels are used to operate the equipment and vehicles required for routine management operations within the Unit. Typical maintenance and monitoring

activities in the Unit do not expend a significant amount of energy. Visitors consume energy traveling to and from the Unit and during recreational activities like motorized boating or jetskiing.

Implementation of the Plan would involve an increase in energy expenditures resulting from the use of energy consuming equipment and processes during future construction and operation of additional Unit facilities. Proposed projects would generate an increase in the total estimated number of daily trips to and from the Unit, involving an increase in energy consumption. As a means of offsetting these potential impacts, the Plan incorporates energy conservation guidelines to avoid inefficient, wasteful and unnecessary consumption of energy, with an aim to decrease overall per capita energy consumption and reliance on natural gas and oil, and increase reliance on renewable energy sources.

Guideline SUSTAIN-3: *Energy and Atmosphere*: Design park improvements to enhance energy efficiency and expand the use of renewable resources by considering the following guidelines when implementing the Plan:

- Illuminate the minimum area for the minimum time. Limit illumination to areas with actual night use or extreme security concerns.
- Question the "brighter is better" approach when designing park lighting. Clearly identify the actual purpose of lighting to determine minimum acceptable levels.
- Use simple timers, motion-sensors, or photocells to turn lights on and off at seasonally appropriate times.
- Use occupancy sensors within buildings to turn lights on and off.
- Use cut-off fixtures, shades, or highly focused low-voltage lamps to avoid spillover and minimize the impacts of light on nocturnal wildlife and the night sky. Linear "tube lights" and fiber-optics can be used to light the way for pedestrians without illuminating a whole area.
- Use energy-efficient lamps and ballasts, including low-voltage lighting to decrease power and energy usage.

- Use renewable energy sources for lighting and other outdoor power. Photovoltaic (PV) power is generally cost-effective, and can be used for applications such as solar path-lights, streetlights, security lights, pumps, and irrigation systems.
- Integrate PV panels into the architectural design of buildings and structures.
- Use energy efficient equipment and fixtures.
- Integrate facilities for car, transit, bicycle, boat, and pedestrian modes of transport, thus reducing dependence on private cars to access the park.
- Design site circulation patterns to encourage pedestrian and bicycle movement and reduce the need for automobile use once in the park.

As each component of the Plan is designed and implemented, energy conservation will be assessed and, if necessary, appropriate mitigation measures created. Implementation of the Plan would not result in a substantial increase in energy consumption.

4.4.2.6 Climate Change

Climate change refers to changes in the global or a regional climate over time. These fluctuations are driven by processes that manipulate the greenhouse effect. Greenhouse gases in our atmosphere, such as carbon dioxide, methane, and nitrous oxide, keep the Earth's average surface temperature close to a hospitable 60 degrees Fahrenheit. Processes that influence the amounts of greenhouse gases include those internal to the Earth, various external, natural forces and, more recently, human activities.

Scientists have documented an overall warming trend since late 19th century, with the decade of the 1990's being the warmest of the century. As the average temperature of the Earth increases, weather patterns are affected, and physical changes lead to impacts on California's public health, economy and ecology. In California, an area of considerable concern is the effect of climate change on the water supply, the majority of which is stored in the Sierras during the winter and spring as snow. Warmer winter temperatures could result in an increase of the amount of precipitation falling as rain and a reduced snow pack. Heavier rainfall could increase the risk of flooding. Another predicted outcome of climate change, a rise in sea level, is already being seen in California, with a 3 - 8 inch rise in the last century. Higher temperatures also cause an increase in harmful air emissions. The most predictable

effect that climate change could have on the Unit is a change in the seasonal flow patterns (i.e., timing and amount) of the American River watershed, increasing the risk of flooding or water shortages during the summer and fall months.

Scientists have modeled potential near-term climate scenarios, but there is a large degree of uncertainty. On a State level, California can cut contributions to climate change by reducing traffic congestion, criteria air pollutants, and emissions of greenhouse gases from mobile sources. There is no significant environmental climate change impact related to management of the Unit that can be predicted given the current state of scientific knowledge. Plan guidelines, compliance with local air quality districts, and specific mitigation measures will help address the uncertainty regarding climate change and ensure that the Plan's proposed human activities do not significantly contribute to greenhouse gas concentrations. Thus, the proposed Plan would not contribute significantly to climate change.

4.4.3 Aesthetics/Visual Resources

4.4.3.1 Affected Environment

Folsom Lake State Recreation Area represents a significant visual and scenic resource within the region. Although the manmade reservoirs were created for flood control, water supply and power generation, the resulting lakefront setting affords visitors with dramatic panoramas of the lakes and the surrounding natural landscape. The growing urban development around the Lakes also affords visitors with views of less scenic urban elements such as the two dams, electric transmission facilities, industrial areas, and residential subdivisions and roadways. The length and configuration of the Unit's shoreline, coupled with the hilly topography, provide significant variety in both viewpoint orientation and available viewsheds, creating a wealth of viewing conditions and opportunities. These resources include a combination of panoramic views in which the Lakes form the dominant foreground element and the surrounding Sierra Foothill landscape forms the background, as well as distinctive landscape features and built features.

4.4.3.1.1 *Views and Vista Points*

The Unit's most significant scenic resources are the dramatic and high quality panoramic views that are available. These panoramas include views across the Lake, views from the lake, as well as views out over the surrounding non-park landscape. Due to the varied topography and sheer length of shoreline within the Unit, there are innumerable points from which to enjoy these scenic resources. However, due to limitations on vehicle access around the lakes there are a handful of key vista points that are widely visited. Lake Overlook—the highest point within the park—is one of the best-known vista points. From this Overlook one is presented with sweeping views of Lake Natoma, the Sierra Foothills, Nimbus Flat, Nimbus Dam, Nimbus Shoals, and urban development in the valley below. Observation Point by Folsom Dam provides sweeping views of Folsom Lake, the levees, and the rugged oak-studded hills of the Peninsula. Other frequently visited viewing areas that provide sweeping vistas of the Unit occur where there are public facilities along the lake shoreline, such as the Folsom Lake Marina, Folsom Point, Beal's Point, Granite Bay and Doton's Point. Other vista points are accessible only by trail and receive much lower visitation due to their more limited access and remote location.

4.4.3.1.2 *Landscape Features*

The two lakes that are the basis for the Unit, Folsom and Natoma, are the most obvious and well-known landscape features. The steep-walled gorge below Folsom Dam that links the two lakes is particularly scenic. Much of this gorge is inaccessible to the public because of its proximity to Folsom Prison. The rugged peninsula separating the North and South Forks of

the American River at Folsom Lake is visible from many parts of the park and contributes to a sense of wild undeveloped countryside due to the limited development. Flagstaff Hill (at over 1,400 feet) and Shirttail Peak (at over 1,300 feet) mark the highest points of the prominent ridgeline that forms the peninsula. Nearby Iron Mountain where New York Creek meets the South Fork of the American River also stands out on the eastern shore of Folsom Lake. Along the western shore of Folsom Lake where it meets the North Fork of the American River, a significant ridgeline rises above the water between North Granite and Horseshoe Bar. Steep gorges further upstream on both the North and South Forks as they extend toward the Sierra Foothills are even more impressive. The Lake Natoma Bluffs rising 150 feet above the western shoreline of Lake Natoma between Negro Bar and Mississippi Bar are another unique geological formation within the Unit. The heavily vegetated shoreline along Lake Natoma is also an important landscape feature that plays a significant role in shaping the character of the Unit as well as the surrounding area.

4.4.3.1.3 Distinctive Built Features

The aesthetic value of built features in the natural landscape is subject to different interpretations. For example, the damming of the American River at Folsom has resulted in a number of distinctive built features within the Unit, including Folsom Dam, Nimbus Dam, and associated structures and levees. While certainly visually distinctive, the effect of these features on the visual character of the Unit is mixed. The large engineering projects certainly detract from the “natural” character of the setting, and the natural character of the Unit is one of its scenic strengths.

Other visually distinctive built features include the three bridges that cross the American River in Folsom and the Folsom Powerhouse. The historic truss bridge (1893), Rainbow Bridge (1917), and Lake Natoma Crossing (2000) are landmarks in the City of Folsom. The Rainbow Bridge continues to serve as a symbol of Folsom with its underside arch and elegant design. The more recent Lake Natoma Crossing mimics many of the design elements of the Rainbow Bridge making it a distinctive feature on Lake Natoma. Located downstream of the three bridges, is the Folsom Powerhouse. The tall, slender brick building of the main Powerhouse and the other associated structures are unique visual features of the Folsom Powerhouse SHP. These structures date back to the 19th century and the site is listed on the National Register of Historic Places (1981).

4.4.3.1.4 Elements Detracting from Scenic Resources and Visual Quality

There are a number of visual features or characteristics in the Unit and vicinity that detract from the quality of the views and scenic character.

Development Around The Unit

There are several locations in the Unit where urban and rural development immediately adjacent to the Unit boundary are visually intrusive. When land was originally acquired in the 1950's to create the reservoir little consideration was given to the potential for urban encroachment. So, in most cases the land acquisition did not extend up and over the primary ridgeline that surrounds Folsom Lake.

As the Folsom area continues to urbanize, homes are being built on the ridgelines overlooking Folsom Lake. In fact, views of the Lake are a key selling point for such real estate. This development has an adverse effect on views from the Unit and the overall scenic quality. Because of their hillside and ridgeline locations, these homes tend to be silhouetted against the sky, significantly altering the skyline and the perception of the Unit area as a rural, natural area. Residential neighborhoods on Folsom Lake display a range of densities from high end rural ranchette subdivisions to urban small-lot subdivisions. Locations in the Unit where adjacent development is visually intrusive include Beal's Point beach, Granite Bay equestrian staging area, the ridgeline overlooking the North Fork of the American River between the North Granite area and Horseshoe Bar, Brown's Ravine, Old Salmon Falls, Iron Mountain above New York Creek, Green Valley Road in the area of the Mormon Island Wetland Preserve, and the entrances to Folsom Point, Lake Overlook, and Nimbus Flat.

Development Within The Unit

Built features or human intervention within the Unit can detract from the overall visual quality and ultimately the visitor experience. Although the damming of the American River at Folsom resulted in the creation of the Unit, Folsom Dam, Nimbus Dam, and their associated earthen levees and appurtenances detract from the natural character of the Unit's setting. This is particularly the case on Folsom Lake in late autumn when the surface water elevations are at their lowest of the season. It is at this time that significant portions of the Folsom Dam and levee elevations are visible above the water line. However, more than any other park facility, the large unbroken parking lots at the key day-use facilities tend to degrade the visual quality of these recreation areas. For instance, the main beach parking area at Granite Bay, nearly 5 acres in size, includes no internal or perimeter planting. Similar conditions exist at the Folsom Point boat ramp, Negro Bar boat ramp, and Observation Point at Folsom Dam.

Other development within the Unit that detracts from the overall visual quality includes utilities. There are several locations within the Unit where utility lines interrupt the scenic landscape and reduce the quality of views from significant vista points. The main utility through the Unit is the Western Area Power Administration high-tension electrical

transmission line between the Nimbus Dam substation to the Folsom Dam substation. Clearly visible from several vantage points in the Mississippi Bar and Negro Bar areas, the towers and overhead lines are significant foreground features when viewed from Lake Natoma and the Lake Overlook. Other structures and utilities that affect visual quality include the State Parks and Reclamation corporation yards located on Folsom Dam Road, and the Reclamation yard located on the western shore of Lake Natoma below the Lake Overlook. These facilities are poorly screened from their surroundings and lend an industrial feel to the area.

Finally, the use of temporary storage facilities by concessionaires and security fencing in specified areas affects visual quality. The storage facilities, 20-foot long white metal transportation containers, are used to store boating equipment at the Negro Bar beach, Granite Bay main beach and boat launch, and the Willow Creek day use area. These containers sharply contrast with the natural character of their setting. Due to the importance and sensitive nature of the dams, security fencing is necessary in several key areas, particularly areas where the public would otherwise have access. However, this fencing is often in various levels of disrepair and reduces visual quality from many vantages within the Unit. One example of security issues impacting the scenic resources of the Unit is from the Lake Overlook where an old chain-link fence interrupts southern views.

4.4.3.1.5 *Threats to Scenic Resources*

The primary threat to scenic resources is from development that has occurred along the unit boundary over the past two decades and continues. Future development will likely come in the form of estate residential subdivisions on the hillsides above Folsom Lake along the Unit boundary. This threat seems more immediate in unincorporated El Dorado County where several residential estate subdivisions have been approved and new homes are constructed which back directly onto Unit lands. Since Unit lands generally represent only a narrow strip along the shoreline above the high water mark, it is difficult to buffer from surrounding development and screen external views. The area most at risk to this type of development is the Peninsula between the two forks of the American River. The Peninsula represents the largest natural and untouched portion of the Unit and is the most visible land area from Folsom Lake and its western shore.

4.4.3.2 Significance Criteria and Evaluation Methodology

Potential significant impacts associated with visual quality have been evaluated using the following criteria (CEQA Guidelines Sections 15000-15387). The project would have a significant impact on visual resources and aesthetics if it would:

- VIS-a:** Have a substantial affect on a scenic vista;
- VIS-b:** Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a State scenic highway;
- VIS-c:** Substantially degrade the existing visual character or quality of the site and its surroundings; or
- VIS-d** Create substantial sources of light and glare.

4.4.3.3 Environmental Evaluation and Mitigation Measures

The environmental consequences associated with implementing the project alternatives (Preferred Alternative, Alternative 3, and Alternative 4) and the No Project Alternative are summarized for Visual Resources in Table 3.A. For all alternatives, resource categories and management zones that have an evaluation of “High” effect or “Moderate” effect are more fully described below to present the level of effect. Where necessary, mitigation measures are present to reduce potential impacts.

4.4.3.3.1 Guidelines

The Plan contains specific guidelines (referenced below) that would avoid or minimize to a less-than-significant level impacts to visual resources associated with new facilities by:

- Guideline VISUAL-4: Minimizing existing elements that detract from the quality of views and scenic character of the park, including visual intrusion from adjacent development as well as facilities within the park.
- Guideline VISUAL-5: Requiring buildings, structures, and landscaping to be sited with sensitivity to scenic views from and into the park.
- Guideline VISUAL-6: Limiting the height for buildings and structures to a single story, except in limited instances where two-story buildings would be consistent with view protection.

Table 3.A: AESTHETICS/VISUAL RESOURCES IMPACTS EVALUATION

<i>Park-Wide Goals and Guidelines</i>				
Resource	No Project	Preferred Alternative	Alternative 3	Alternative 4
Invasive Exotic Plant Species	No Impact	No Impact	No Impact	No Impact
Vegetation Management	No Impact	No Impact	No Impact	No Impact
Cultural Resource Management	No Impact	High	High	High
Wildlife Management	No Impact	Low	Low	Low
Watershed/Water Quality Management	High	No Impact	No Impact	No Impact
Visual Resources	No Impact	No Impact	No Impact	No Impact
Unitwide Interpretation	High	High	High	High
Visitor Services			see below	
Visitor Capacity			see below	
Park Operations			see below	
<i>Specific Area Goals and Guidelines</i>				
Management Zone	No Project	Preferred Alternative	Alternative 3	Alternative 4
Nimbus Dam	No Impact	No Impact	No Impact	No Impact
Nimbus Flat/Shoals	Low	Moderate	Moderate	Low
Lake Overlook	Low	Moderate	Moderate	Moderate
Mississippi Bar	Low	Moderate	High	Moderate
Negro Bar	Low	Moderate	Moderate	Low
Natoma Canyon	No Impact	Low	Low	Low
Folsom Powerhouse	Low	High	High	High
Natoma Shore North	Low	Low	Low	Low
Natoma Shore South	High	High	Moderate	Low
Lower Lake Natoma (AQ)	No Impact	No Impact	No Impact	No Impact
Upper Lake Natoma (AQ)	No Impact	No Impact	No Impact	No Impact
Folsom Dam	No Impact	Moderate	Moderate	Moderate
Beals Point	No Impact	Low	Low	Low
Mooney Ridge	High	Low	Low	Low
Granite Bay South	Low	Moderate	Moderate	Moderate
Granite Bay North	High	Low	Moderate	Low
Placer Shore	No Impact	Low	Low	Low
Rattlesnake Bar	Moderate	Moderate	High	Low
North Fork Shore	Low	Low	Low	Low
Anderson Island	No Impact	Low	Low	Low
Peninsula	Moderate	Moderate	High	Moderate
Darrington	No Impact	No Impact	No Impact	No Impact
Skunk Hollow/Salmon Falls	Low	Low	Low	Low
El Dorado Shore	High	Low	High	Low
Brown's Ravine	Moderate	Moderate	High	Moderate
Mormon Island Cove	Low	Low	High	Low
Mormon Island Preserve	Low	Low	Low	Low
Folsom Point	Moderate	High	High	High
Folsom Lake (AQ)	No Impact	No Impact	No Impact	No Impact
Middle North Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Upper North Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Middle South Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Upper South Fork (AQ)	No Impact	No Impact	No Impact	No Impact

Guideline VISUAL-7: Restricting night lighting to developed areas of the park consistent with security and safety needs.

Guideline VISUAL-8: Requiring lighting to be hooded, directed downward and at intensity levels to be kept as low as possible consistent with public safety standards.

4.4.3.3.2 *Impacts*

Impact VIS-1: New construction within the park unit that would result from Plan implementation could potentially impact existing scenic resources (Significance Criteria VIS-a through VIS-c).

The development of additional recreational, interpretive, and administrative facilities associated with Plan implementation could adversely affect the park's existing scenic quality and character by reducing scenic vistas, and damaging scenic resources.

Impact VIS-2: New construction within the park unit that would result from Plan implementation could create new sources of light or glare (Significance Criteria VIS-d).

Sources of new lighting and glare associated with build out of the Plan could adversely affect nighttime views and protected wildlife communities. The location of outdoor lighting on the project site would be determined prior to the approval of individual projects.

Specific impacts related to the development of new facilities associated with Plan implementation are described below.

PARK-WIDE GOALS AND GUIDELINES

Cultural Resource Management

Preferred Alternative, Alternative 3 and Alternative 4: High Impact

Implementation of these alternatives would result in the additional development of interpretive facilities, such as the State Indian Museum and the Negro Bar Cultural Center at various locations within the park. Impacts related to development of these facilities are addressed by management zone in the Specific Area Goals and Guidelines section below.

Watershed/Water Quality Management

No Project: High Impact

Installation of sewage treatment/disposal facilities for maintaining water quality has the potential to affect the park's scenic quality by detracting from the natural character of the Unit.

Unitwide Interpretation*All Alternatives: High Impact*

Implementation of these alternatives would result in the additional development of interpretive facilities, such as the State Indian Museum and the Negro Bar Cultural Center at various locations within the park. Impacts related to development of these facilities are addressed by management zone in the Specific Area Goals and Guidelines section below.

SPECIFIC AREA GOALS AND GUIDELINES**Nimbus Flat/Shoals***Preferred Alternative: Moderate Impact*

Implementation of the Preferred Alternative could result in the development of a multi-use facility at Nimbus Flat to include flexible classroom and event space, kitchen facilities, storage, administrative area, exhibit area, and other visitor service facilities. Construction of these facilities has the potential to affect the existing scenic character of Nimbus Flat/Shoals. However, as this area has already been largely developed, this impact is considered moderate. Implementation of Guidelines VISUAL-4 through VISUAL-6 would reduce potential impacts to a level below significance. No mitigation measures are necessary.

Alternative 3: Moderate Impact

Implementation of Alternative 3 would result in the development of an artificial whitewater course channel and associated spectator facilities. Construction of these facilities has the potential to affect the existing scenic character of Nimbus Flat/Shoals. However, as this area has already been largely developed, this impact is considered moderate. Implementation of Guidelines VISUAL-4 through VISUAL-6 would reduce potential impacts to a level below significance. No mitigation measures are necessary.

Lake Overlook*Preferred Alternative, Alternative 4: Moderate Impact*

Implementation of the Preferred Alternative and Alternative 4 would result in the additional development of day-use facilities, including a vista point/viewing platform, formalized trailheads, interpretive displays, and shade armadas. Due to the developed nature of the site, this impact is considered moderate. Management direction for this zone, including removal of security fencing and planting of landscape buffers to screen adjacent residential development, would enhance the visual quality of the site, thereby providing a beneficial aesthetic impact.

Implementation of Guidelines VISUAL-4 through VISUAL-6 would reduce potential impacts to a level below significance. No mitigation measures are necessary.

Alternative 3: Moderate Impact

Construction of a small amphitheater, associated with implementation of Alternative 3, has the potential to interrupt scenic vistas, which are a key feature of this management zone. Due to the relatively small size of the proposed facility and the developed nature of the site, this impact is considered moderate. Implementation of Guidelines VISUAL-4 through VISUAL-6 would reduce potential impacts to a level below significance. No mitigation measures are necessary.

Mississippi Bar

Preferred Alternative, Alternative 4: Moderate Impact

Expansion of development at Mississippi Bar to include picnic areas, vehicle access, parking, toilets and drinking water, has the potential to affect the existing scenic quality of Mississippi Bar. However, as this area has already been developed with the Shadow Glen concession and has previously been disturbed due to historic mining activities, this impact is considered moderate. In addition, improvements to the Shadow Glen concession proposed under these alternatives would enhance its aesthetic quality, thereby providing a beneficial impact to visual resources in this management zone. Implementation of Guidelines VISUAL-4 through VISUAL-6 would reduce potential impacts to a level below significance. No mitigation measures are necessary.

Alternative 3: High Impact

The additional development of day-use facilities, including a visitor/interpretive center, boat house and docks, picnic sites, entrance station, and parking and expansion of the Shadow Glen concession, could significantly alter the current visual character of Mississippi Bar and potentially introduce new sources of light and glare. Although this management zone has been developed with the Shadow Glen concession and previously disturbed due to historic mining activities, a significant increase in the level of development is proposed under Alternative 3. This increase would be considered a potentially significant aesthetic impact. Implementation of Guidelines VISUAL-4 through VISUAL-8 would reduce potential impacts to a level below significance. No mitigation measures are necessary.

Negro Bar*Preferred Alternative: Moderate Impact*

Implementation of the Preferred Alternative would result in development of the Negro Bar Cultural Center and expansion of interpretive facilities that could affect the existing scenic quality of Negro Bar and introduce new sources of light and glare. As this area has already been developed with day use facilities, this impact is considered moderate. Management direction for this zone, such as, removing/reducing pavement and restoring the Rainbow Rocks area, would improve scenic quality by enhancing the natural character of the site, thereby providing a beneficial aesthetic impact to this management zone. Implementation of Guidelines VISUAL-4 through VISUAL-8 would reduce potential impacts to a level below significance. No mitigation measures are necessary.

Alternative 3: Moderate Impact

Expansion of the group camping area, day use beach area, and existing boat ramp and development of a paddling facility/boathouse has the potential to affect the scenic quality of Negro Bar and introduce new sources of light and glare. As this area has already been developed with day use facilities, this impact is considered moderate. Implementation of Guidelines VISUAL-4 through VISUAL-8 would reduce potential impacts to a level below significance. No mitigation measures are necessary.

Folsom Powerhouse*Preferred Alternative, Alternative 3, Alternative 4: High Impact*

Development of a visitor center and expansion of the parking area has the potential to adversely affect the scenic quality of the site by detracting from the historic structures of the Folsom Powerhouse, a unique visual feature within the Unit. Management direction for this zone (e.g., replacing security fencing, relocating overhead power lines, and providing landscape screening) would improve scenic quality by enhancing the historic character of the site, thereby providing a beneficial aesthetic impact to this management zone. Implementation of Guidelines VISUAL-4 through VISUAL-6 would reduce potential impacts to a level below significance. No mitigation measures are necessary.

Natoma Shore South*No Project and Preferred Alternative: High Impact*

Development of the State Indian Museum has the potential to adversely affect the existing scenic quality and character of Museum Flat by reducing scenic vistas,

altering the open landscape character, damaging scenic resources, or creating new sources of light and glare. Implementation of Guidelines VISUAL-4 through VISUAL-8 would reduce potential impacts to a level below significance. No mitigation measures are necessary. The No Action/No Project Alternative would not implement the guidelines developed for the Plan.

Alternative 3: Moderate Impact

Implementation of Alternative 3 would result in the expansion of day use facilities in the Willow Creek area, including the development of formalized picnic sites, boat ramp, boat dock and expanded parking area. This development has the potential to adversely affect the scenic quality and character of Willow Creek area. However, as this area has already been developed with day use facilities, this is considered a moderate impact. Implementation of Guidelines VISUAL-4 through VISUAL-6 would reduce potential impacts to a level below significance. No mitigation measures are necessary.

Folsom Dam

Preferred Alternative, Alternative 3, and Alternative 4: Moderate Impact

Implementation of these alternatives could result in the development of a consolidated administrative complex, including offices, a visitor center, and an expanded American River Water Education Center (ARWEC) to replace existing administrative facilities. As Folsom Dam itself already detracts from the natural character of the setting, this impact is considered moderate. Implementation of Guidelines VISUAL-4 through VISUAL-6 would reduce potential impacts to a level below significance. No mitigation measures are necessary.

Mooney Ridge

No Project: High Impact

Development of a 200-slip marina with snack bar, boating equipment rental, ferry terminal, 250 parking spaces, operations dock/office, and restrooms, has the potential to adversely affect the scenic quality and character of the Mooney Ridge and introduce new sources of light and glare. Currently, Mooney Ridge is largely undeveloped (trail access only); a significant increase in the level of development is proposed under the No Action Alternative. This increase would be considered a potentially significant aesthetic impact.

Granite Bay South*Preferred Alternative, Alternative 3, Alternative 4: Moderate Impact*

Reconfiguration of the vehicle entrance, boat launch complex, and main beach parking area; expansion of the Activity Center; and development of additional facilities including lifeguard tower and dry dock storage facility has the potential to adversely affect the scenic quality and character of Granite Bay South. As this area has already been developed with day-use facilities, this impact is considered moderate. Implementation of Guidelines VISUAL-4 through VISUAL-6 would reduce potential impacts to a level below significance. No mitigation measures are necessary.

Granite Bay North*No Project: High Impact*

The addition of 250 parking spaces, paved roads, and paved access to just below the high water mark, has the potential to adversely affect the scenic quality and character of Oak Point/Dotons Point. This management zone remains largely undeveloped. The significant increase in the level of development proposed under the No Action Alternative would be considered a potentially significant aesthetic impact.

Alternative 3: Moderate Impact

The addition of a new park entrance as well as a formal beach at Oak Point with parking for approximately 100 vehicles and other day use facilities have the potential to adversely affect the scenic quality and character of this management zone. Although this management zone remains largely undeveloped, the increase in the level of development proposed under Alternative 3 would be considered a moderate aesthetic impact. Implementation of Guidelines VISUAL-4 through VISUAL-6 would reduce potential impacts to a level below significance. No mitigation measures are necessary.

Rattlesnake Bar*No Project: Moderate Impact*

Implementation of the No Project alternative would result in additional development of 100 picnic tables, trail camp, staff residence, and floating restroom and upgrades to the equestrian staging area. Although this management zone has been minimally developed, the increase in the level of development proposed under this alternative would be considered a moderate aesthetic impact.

Preferred Alternative: Moderate Impact

Implementation of the Preferred Alternative would result in additional development of picnic facilities, including group picnic areas with shade armadas, vault toilets, and landscaping and the potential development of additional staff housing. Although this management zone has been minimally developed, the increase in the level of development proposed under this alternative would be considered a moderate aesthetic impact. Implementation of Guidelines VISUAL-4 through VISUAL-6 would reduce potential impacts to a level below significance. No mitigation measures are necessary.

Alternative 3: High Impact

Implementation of Alternative 3 would change the management designation to high intensity recreation and would result in the development and expansion of day use facilities including extension and widening of the boat ramp, additional parking, improvement of the access road, addition of 50-100 picnic sites, and improvement of trailhead facilities. Although this management zone has been minimally developed, the increase in the level of development proposed under this alternative would be considered a significant aesthetic impact. Implementation of Guidelines VISUAL-4 through VISUAL-6 would reduce potential impacts to a level below significance. No mitigation measures are necessary.

Peninsula*No Project: Moderate Impact*

The additional development of shower facilities, RV sanitary station, 200 picnic sites and a beach area, loop trail, trail staging area and trail camp has the potential to affect the scenic quality and character of this management zone by damaging scenic resources. As this area has already been developed with campground and day-use facilities, this impact is considered moderate.

Preferred Alternative and Alternative 4: Moderate Impact

The additional development of 50 campsites and trailhead facilities has the potential to affect the scenic quality and character of this management zone by reducing scenic vistas (both to and from the site) and creating new sources of light and glare. As this area has already been developed with campground and day-use facilities, this impact is considered moderate. Implementation of Guidelines VISUAL-4 through VISUAL-8 would reduce potential impacts to a level below significance. No mitigation measures are necessary.

Alternative 3: High Impact

The additional development of 100-200 campsites and marina has the potential to affect the scenic quality and character of this management zone by reducing scenic vistas (both to and from the site), damaging scenic resources, and creating new sources of light and glare. Although this area has already been developed with campground and day-use facilities, the level of development proposed under Alternative 3 is considered a potentially significant aesthetic impact. Implementation of Guidelines VISUAL-4 through VISUAL-8 would reduce potential impacts to a level below significance. No mitigation measures are necessary.

El Dorado Shore*No Project Alternative: High Impact*

The development of 80 campsites, RV (recreational vehicle) sanitary station, boat dock, boat camping, swim beach with restrooms and trail staging area in the vicinity of New York Creek/Monte Vista has the potential to adversely affect the scenic quality and character of this management zone by damaging scenic resources and creating new sources of light and glare. Although this area was previously developed as a campground, it has been out of use for some time. The level of development proposed under the No Project Alternative would be considered a potentially significant aesthetic impact.

Alternative 3: High Impact

The development of paved formalized parking areas at Sweetwater Creek, a major trailhead and staging facility at Falcon Crest and day use facilities in the vicinity of the former Monte Vista campground has the potential to adversely affect the scenic quality of this management zone by damaging scenic resources and detracting from the natural character of the setting. Although this area was previously developed as a campground, it has been out of use for some time. The level of development proposed under Alternative 3 would be considered a potentially significant aesthetic impact. Implementation of Guidelines VISUAL-4 through VISUAL-6 would reduce potential impacts to a level below significance. No mitigation measures are necessary.

Brown's Ravine*No Project: Moderate Impact*

Implementation of the No Project Alternative would result in the development of additional facilities to include dry boat storage and repair building, 100 additional boat slips, and office/storage building for lake patrol. Construction of these facilities has the potential to adversely affect the scenic quality and character of this

management zone by damaging scenic resources, detracting from the natural landscape character, and creating new sources of light and glare. As this zone is largely developed with marina-related facilities, this impact is considered moderate.

Preferred Alternative, Alternative 4: Moderate Impact

Implementation of these alternatives would result in development of additional facilities to include additional boat slips and a multi-use facility. It would also entail extension of the existing dock system, reconfiguration of the marina and Hobie Cove boat ramps, and upgrade of the storm water system. Construction of these facilities has the potential to adversely affect the scenic quality and character of this management zone by damaging scenic resources, detracting from the natural landscape character, and creating new sources of light and glare. As this zone is largely developed with marina-related facilities, this impact is considered moderate. Implementation of Guidelines VISUAL-4 through VISUAL-8 would reduce potential impacts to a level below significance. No mitigation measures are necessary.

Alternative 3: High Impact

Under this alternative, Brown's Ravine Marina would be expanded into Mormon Island Cove resulting in significant aesthetic impacts. See "Mormon Island Cove" below.

Mormon Island Cove

Alternative 3: High Impact

The expansion of Brown's Ravine Marina into this zone, including roads, parking areas, boat ramps, slips, dry storage and other facilities, has the potential to adversely affect the scenic quality and character of this management zone by damaging scenic resources, detracting from the natural landscape character, and creating new sources of light and glare. The level of development proposed under Alternative 3 would be considered a potentially significant aesthetic impact. Implementation of Guidelines VISUAL-4 through VISUAL-8 would reduce potential impacts to a level below significance. No mitigation measures are necessary.

Folsom Point

No Project: Moderate Impact

The additional development of a visitor/orientation center that may include a restaurant at Observation Point has the potential to adversely affect the scenic quality and character of this management zone by reducing scenic vistas and introducing new sources of light and glare. While the proposed facility would capitalize on

viewing opportunities from this location, the structure itself may interrupt panoramic views from other locations. Although the Observation Point area has previously been developed with the Folsom Dam and associated ancillary structures, the level of development proposed under all alternatives would be considered a potentially significant aesthetic impact.

Preferred Alternative, Alternative 4: High Impact

Implementation of these alternatives would result in the additional development of a multi-use facility at Folsom Point as well as reconfiguration of the picnic area and the boat ramp, expansion of the parking area, and provision of restrooms and drinking water. It would also entail the development of a trailhead at Dike 7, a Class I bike path to Mormon Island Cove, and promotion of a Class I bike path across the canyon on the new Folsom Dam Road. Development of these facilities has the potential to adversely affect the scenic quality and character of this management zone by reducing scenic vistas and introducing new sources of light and glare. Although this area has previously been developed with day use facilities and structures related to Folsom Dam, the level of development proposed under all alternatives would be considered a potentially significant aesthetic impact. Implementation of Guidelines VISUAL-4 through VISUAL-8 would reduce potential impacts to a level below significance. No mitigation measures are necessary.

Alternative 3: High Impact

Implementation of Alternative 3 would result in the additional development of a multi-use facility at Folsom Point as well as expansion of boat ramp parking and development of a formal beach area. Like the Preferred Alternative and Alternative 4, it would also entail the development of a trailhead at Dike 7, a Class I bike path to Mormon Island Cove, and promotion of a Class I bike path across the canyon on the new Folsom Dam Road. Development of these facilities has the potential to adversely affect the scenic quality and character of this management zone by reducing scenic vistas and introducing new sources of light and glare. Although this area has previously been developed with day use facilities and structures related to Folsom Dam, the level of development proposed under all alternatives would be considered a potentially significant aesthetic impact. Implementation of Guidelines VISUAL-4 through VISUAL-8 would reduce potential impacts to a level below significance. No mitigation measures are necessary.

Implementation of the above listed guidelines would reduce impacts affecting visual resources to less than significant levels. No mitigation measures are required.

Consequently, the conditions included in the Significance Criteria (VIS-a through VIS-d) have been addressed.

4.4.4 Geology and Soils

4.4.4.1 Affected Environment

4.4.4.1.1 *Geology*

GEOLOGIC SETTING

The topography of the Folsom Lake State Recreation Area (the Unit) is characterized by its location within the American River Watershed. Folsom Lake occupies the deep, narrow V-shaped canyons of the North and South Forks of the American River and the valley at the confluence of the two forks. Lake Natoma lies in the wide gulch of the American River cut into Tertiary sedimentary rocks below Folsom Dam (Figure 4.A). Elevations within the Unit range from just over 800 feet in the hills surrounding the Peninsula Campground to about 100 feet in elevation along the low terraces surrounding Lake Natoma.

The Unit is located at the western extent of the Sierra Nevada foothills between the Central Sierra Nevada and the Central Valley geomorphic provinces. The Sierra Nevada is a geomorphic region in California characterized by a north-northwest trending mountain belt with a broad region of foothills along the western slope. The Folsom Lake region is dominated by rolling hills and upland plateaus located between major river canyons. One major fault line traverses the Unit; it is the west trace of the Bear Mountains Fault Zone. In the Unit area, the fault trends nearly north-south from Auburn to El Dorado Hills, crossing Folsom Lake in the upper reaches of the North Fork arm near Manhattan Bar Road and crossing the South Fork arm at New York Creek. This portion of the fault zone is characterized as not active and the risk of shaking at the Unit is very low due to the distance from major faults, hard bedrock and thin soil cover.

The overall trend of the regional geologic structure is defined by the predominantly northwest-southeast trending belt of metamorphic rocks with included ultramafic rocks and the strike-slip faults that bind them. The ultramafic rocks found in the Unit represent the lowest part of the Earth's crust that has been lifted as much as 20 miles vertically by the faulting and underthrusting of other pieces of crust. Outcrops of ultramafic rocks tend to be resistant to erosion and often form topographic highs. Metamorphic rocks, known as the Copper Hill Volcanics, occur east of Rattlesnake Bar, through most of the Peninsula between the two arms of the lake and all along the southern margin of the Unit. These rocks represent ancient chains of volcanic islands (island arcs) and the associated seafloor sediments that have since been buried, squeezed, and heated to form metasedimentary and metavolcanic rocks. During the Jurassic period, from about 160 to 140 million years ago, the island arcs were added as the ocean plate in which they were embedded was subducted

beneath western North America. The Unit also contains younger granitic intrusive plutons that intruded and obliterated some of the metamorphic belt and nearly flat-lying deposits of volcanic ash, debris flows, and alluvial fan deposits that overlie the older rocks.

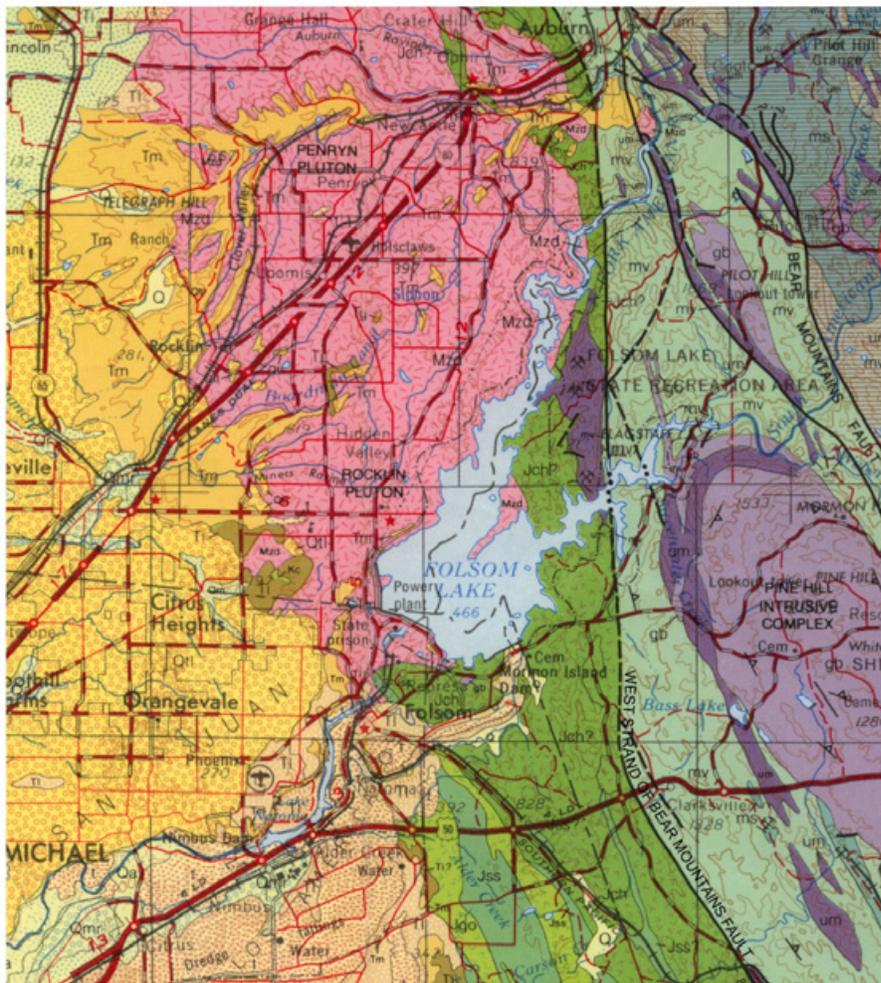
The most interesting geologic feature of the Folsom Lake area is the contact between the younger, intruded plutons and the older, pre-existing metamorphic rocks. This boundary is well exposed near the Peninsula campground and at Rattlesnake Bar. Another significant geological and structural feature is the large exposure of ultramafic rocks on Flagstaff Mountain. Both top and bottom of this unit are fault contacts that represent the juxtaposition of rock that formed as deep as 20 miles into the crust against sediments that were deposited on the sea floor and later heated and squeezed to become the metamorphic belt.

GEOLOGIC HAZARDS

Landslides, mudflows, and rock falls are not considered a major hazard in the Folsom Lake portion of the Unit as most soils are too thin and slopes too low to create conditions for mass wasting. However, landslide conditions may be present where the Laguna Formation overlies metamorphic bedrock, including the north side of Folsom Lake (Mooney Ridge) and the upper reaches of Lake Natoma east of the River (Natoma Canyon). Site specific studies would be required to determine where landslides may occur. However, the steep bluffs along the northwest side of Lake Natoma are known to be unstable and could spill rocks or chunks of loosely consolidated material onto the path at the base of the slope especially after a rain storm or during groundshaking from a distant earthquake.

Volcanic hazards include ash fall and lava flows. The Unit is not in any danger of flows, but there are several dormant volcanic centers in California that could, under the right conditions, create an ash fall hazard. For example, Clear Lake volcanism could generate an eruption that is about 80 miles upwind of the Unit. The Long Valley Caldera region could also generate an eruption with large amounts of ash, though the prevailing wind direction is more to the east and south of the study area.

Abandoned or idle pit mines for talc and asbestos occur on the peninsula between the forks of the river. Placer gold occurs in the active streambeds of the American River upstream of the lake.



Quaternary Sediments

- Alluvium
- Mine and dredge tailings
- Qa Levee and channel deposits
- Qm Modesto Formation (alluvium)
- Qr Riverbank Formation (alluvium)
- Qmr Modesto-Riverbank Formation (Arkosic alluvium)
- Qtl Turlock Lake Formation (sand, silt, and gravel)

Tertiary Sedimentary Rocks

- Tl Laguna Formation consolidated alluvial deposits
- Tm Mehrten Formation andesitic conglomerate, sandstone, and breccia
- Tl lone Formation quartzose sandstone and kaolinic clay

Cretaceous Metasedimentary Rocks

- Jss Salt Spring Slate
- Jch Copper Hill Volcanics
- Jgo Gopher Ridge Volcanics

Mesozoic Metamorphic Rocks

- ms metasedimentary rocks in melange
- mv metavolcanic rocks in melange

Plutonic Rocks

- Mzd Mesozoic dioritic rocks
- gb Gabbroic rocks
- um Ultramafic rocks

Folsom Lake State Recreation Area & Folsom Powerhouse State Historic Park
General Plan/Resource Management Plan

Source: Wagner et al. (CDMG) 1981

Figure 4.A
GEOLOGIC MAP OF THE FOLSOM AREA

Shoreline erosion around the lake appears to be caused mainly by wind-generated and boat-generated waves lapping along a margin with no sand armor. Changing lake water levels and wave action have effectively stripped the soil from most areas around the lake margin and redeposited that sediment within the lake basin. Areas undergoing greater than normal erosion are those where runoff from land is funneled into gullies and streams surrounding the lake basin. In places, runoff from paved surfaces surrounding the lake has caused considerable erosion. Control of erosion within the Unit will be an ongoing effort.

Naturally Occurring Asbestos (NOA). Asbestos is the name for a group of naturally occurring silicate minerals that may be found in serpentine rock and both mafic and ultramafic volcanic rock (materials that contain magnesium and iron and a very small amount of silica). NOA deposits are not limited to these formations as deposits have been found in rock other than serpentine and ultramafic rock. The two varieties of asbestos include serpentine asbestos and amphibole asbestos. Both types of asbestos are hazardous as they may cause lung disease and are classified as a known human carcinogen by state, federal, and international agencies. When rock containing NOA is broken or crushed, asbestos fibers may be released from the rock and may become airborne, causing a health hazard.

NOA is present in the geologic formations within the Unit area. Both ultramafic and mafic volcanic rocks are known to contain NOA fibers. The northwest-southeast trending belt of metamorphic rocks with included ultramafic rocks is composed of the following formations as identified in the Resource Inventory (largely taken from Wagner et. al., 1981)

Ultramafic plutonic rocks. These ultramafic rocks were originally formed as intrusive bodies of peridotite, pyroxenite and gabbro as deep as 10 miles below the surface approximately 157 to 175 million years ago (Page, et al., 1982). Over time, and with tremendous tectonic forces, these rocks have been uplifted and exposed by erosion of the overlying rocks. Most of the original minerals have been altered to serpentine minerals (metamorphosed ultramafic, light- to dark-green aggregates of antigorite, chrysotile, and chlorite). Where the majority of minerals are serpentine, the rock is called serpentinite. Ultramafic rock is resistant and generally forms topographic highs. Soil developed over serpentinitized ultramafic rock tends to be high in nickel and cobalt, creating toxic conditions for many plants. Consequently, a limited variety of plants are found over these rocks.

Copperhill Volcanic rocks. Copper Hill volcanic-related rocks occur all along the southern margin of Folsom Lake as well as in a small patch on either side of the river

just east of the bridge over Lake Natoma along Folsom-Auburn Road. These rocks are described as metamorphosed basaltic breccia and ash (mafic pyroclastic) rocks, pillow lava, and minor bodies of granitic composition (felsic porphyrite). The origin of most of these rocks is at or near an oceanic island volcanic arc that was later added (accreted) to the continent and deformed. These rocks are generally resistant to erosion and form thin, clayey soil. Amphibole NOA in the Copper Hill Volcanics appears to be associated with both low-grade metamorphism of mafic volcanic rock and with hydrothermal deposition in veins. Amphibolite schists in the region have been found to contain NOA at levels that potentially trigger regulatory mitigation requirements due to possible health risks. Altered clino-pyroxenes are likely one source of tremolite. Veins and fracture coatings of amphibole asbestos, along with what are likely to be partially paramorphosed amphiboles with coatings of both actinolite and tremolite asbestos have all been identified in the Copper Hill Volcanics. (Geological Society of America, 2005).

Faults and Shearing. Zones of faulted or sheared rock may locally increase the relative likelihood for the presence of NOA within or adjacent to areas moderately likely to contain NOA.

The California Geological Survey (CGS) and DOC produced maps that indicate the known and likely locations of NOA and associated geological formations within the region. NOA deposits and NOA bearing materials are abundant in the Sierra Nevada foothills and are known to be present in El Dorado County, Sacramento County and Placer County area. Occurrences of amphibole asbestos and metamorphosed mafic volcanic rocks have been mapped in several locations in eastern Sacramento County and in the City of Folsom. As NOA occurrences are particularly frequent in this region, several studies have been conducted in effort to further determine the extent in the air and soil.

El Dorado County. Due to growing health concerns in 1999, a task force comprised of local, state and federal agencies recommended that the California Geological Survey select El Dorado County as a “pilot project” for extensive NOA mapping. In May 2000, the CGS released a map entitled *Areas More Likely to Contain Natural Occurrences of Asbestos in Western El Dorado County, California* with an accompanying report. This publication revealed the geographical extent of potentially asbestos bearing materials in the western El Dorado County and measured the relative likelihood of NOA presence in one general location compared to another. This map indicates that there are north/south trending fault lines that run through the North and South Forks of the American River within the Unit. The materials

exposed along these faults are more likely to contain asbestos fibers. Management areas with the potential to contain asbestos-bearing rock formations include: North Fork Shore, Upper North Fork, Middle North Fork Shore, Darrington, El Dorado Shore and Middle South Fork.

In May 2006, the EPA released the *El Dorado Hills, Naturally Occurring Asbestos Multimedia Exposure Assessment Preliminary Assessment and Site Inspection Report, Interim Final*. Data for the report was produced in October 2004 when the EPA collected more than 450 air and soil samples in community areas and schools of El Dorado Hills in El Dorado County. Locations frequented by youth are of particular concern because a child's longer life expectancy exceeds the latency period for asbestos-related disease. The EPA's findings demonstrated the presence of asbestos at elevated levels in air. Amphibole asbestos, the most toxic asbestos fiber, was the dominant asbestos fiber type found in the El Dorado Hills.

Placer County. Less extensive studies have been conducted in the other counties within the Folsom SRA region. Though it is reasonable to assume that asbestos fibers may be present in dust and soil in areas of Placer County where the composition of soil and rocks are comparable to that of El Dorado County. Air sampling conducted by the California Air Resources Board (ARB) in 1999 found low, but detectable, asbestos fiber concentrations at locations in Foresthill and Auburn.

In 2006, the CGS prepared a map and report for Placer County that assessed the presence of NOA. The publication, entitled *Relative Likelihood for the Presence of Naturally occurring Asbestos in Placer County, California*, indicated that the complex geology of the County provides many settings that are favorable for the presence of NOA. The map indicates that there are two areas of shearing or faulting where the presence of NOA is moderately likely. According to the map, management areas with the potential to contain asbestos-bearing rock formations include: Upper North Fork, North Fork Shore and Granite Bay North.

The PCAPCD is responsible for adopting one of the most strict dust control policies in the State and recently added staff to conduct patrols throughout the county for dust violations and to visit construction sites.

Sacramento County. The Sacramento Metropolitan Air Quality Management District (SMAQMD) addresses NOA in Sacramento County, focusing much attention on the NOA health concerns in Folsom. In 2004, the SMAQMD

published the *Interim Asbestos Map of the City of Folsom* which locates the geologic units that are more likely to contain naturally occurring asbestos. In August 2005, SMAQMD Air Pollution Control Officer (APCO) made a preliminary determination that the Copper Hills and Gopher Ridge volcanic areas contained NOA.

In July 2006, SMAQMD commissioned the CGS to prepare a map and report in effort to gain a more accurate representation of the likelihood of NOA presence in areas of Sacramento County. The map accompanying the report, *Relative Likelihood for the Presence of Naturally occurring Asbestos in Eastern Sacramento County, California*, confirms that there are areas moderately likely to contain NOA in the Copper Hill Volcanics that contain metamorphic and igneous rocks. Management areas with the potential to contain asbestos-bearing rock formations include: Folsom Point, Mormon Island Preserve and Natoma Canyon.

Chromium. The chromium mineral deposit in this region is large, with eleven chrome bearing areas in an area of around two square miles. Abandoned chromium mines occur on Flagstaff Mountain on the Peninsula of Folsom Lake. The Pillikin mine has been idle since April of 1955 and it is estimated there are at least 450,000 tons of material containing five percent or more chromium which can still be mined. Chromium has a wide range of uses in metals, chemicals, and refractories. It is one of the Nation's most important strategic and critical materials. Ecological mineral resources have been mined in the region in the past, and mining may become economical or feasible again in the future.

4.4.4.1.2 Soils

Soils within the Folsom Lake State Recreation Area are generally well-drained, silty, sandy and gravelly mixtures developed over either granitic or metamorphic bedrock. Higher elevation soils are thin with numerous outcroppings of igneous and metamorphic rock and have limited permeability. Loose soils of decomposed granite are common on the north and west sides of Folsom Lake, while clayey, denser soils are common on the south side of the Lake. Soils developed over granite bedrock are extremely coarse and sandy and drain rapidly; consequently, granitic soils are highly erodible. Evidence of excessive erosion was observed at numerous places along the north shore; most of it appears to have been worsened by off-road vehicle users as well as by use of unpaved trails. Another problem associated with granitic soils is excessive drainage. Leach fields should not be constructed in this soil type, because leachate will travel rapidly through the soil and emerge at the surface downslope.

Serpentine soil forms over serpentine bedrock, the bulk of which lies in a north-south swath through the Peninsula area of Folsom Lake and south of the south Fork of the American River. Serpentine soils contain high levels of nickel, chromium and manganese that limit the varieties of plants that can grow in it. However, a number of special status plant species have adapted to the toxicity of serpentine soil and can be found only in this soil type. Serpentine soils are also known to contain hazardous asbestos fibers.

Dredge tailings represent the past activity of dredging for placer gold; reworking of the tailings may occur in the future. Much of the area around Lake Natoma has been modified by large-scale dredging for gold resulting in extensive deposits of dredge tailings composed of small to large cobbles and boulders of smooth rock occurring in a hummocky or lumpy pattern. Water washes through these cobbles so quickly that any fine-grained material is soon washed away, leaving the tailings piles largely unvegetated.

Soil information is derived from the U.S. Department of Agriculture's soil surveys of Placer and Eastern Sacramento Counties and the El Dorado Area. A complete description of the various soil types found in the Unit is included under separate cover in the Resource Inventory.

4.4.4.2 Significance Criteria and Evaluation Methodology

Potential significant impacts associated with soils and geology have been evaluated using the following criteria (CEQA Guidelines Sections 15000-15387). A potentially significant environmental impact related to geologic and seismic hazards would result if implementation of the project would:

- GEO-a** Expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving:
- i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault;
 - ii) Strong seismic ground shaking;
 - iii) Seismic-related ground failure, including liquefaction;
 - iv) Landslides;
- GEO-b** Result in substantial soil erosion or the loss of topsoil;

- GEO-c** Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;
- GEO-d** Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property; and
- GEO-e** Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of wastewater.

4.4.4.3 Environmental Evaluation and Mitigation Measures

The environmental consequences associated with implementing the project alternatives (Preferred Alternative, Alternative 3, and Alternative 4) and the No Project Alternative are summarized for Geology and Soils in Table 4.A. For all alternatives, resource categories and management zones that have an evaluation of “High” effect or “Moderate” effect are more fully described below to present the level of effect. Where necessary, mitigation measures are present to reduce potential impacts.

4.4.4.3.1 Guidelines

The Plan contains several guidelines that would avoid or minimize impacts pertaining to geological resources and soils to a less-than significant level:

- Guideline GEO-1:** Inventory and monitor geologic features within the unit as needed to protect and manage these resources.
- Guideline GEO-2:** Limit human-caused impacts to important geologic features through design and location of visitor use facilities, educational materials and the use of barriers as appropriate.
- Guideline GEO-3:** Remove non-historic defacements of geologic features as feasible and restore damaged sites to as natural an appearance as possible.
- Guideline GEO-4:** Intervene in natural geologic process only when necessary in emergencies to protect human life and property, there is no other way to protect other park resources or facilities, or when necessary to restore impacted natural conditions.

Table 4.A: GEOLOGY & SOILS IMPACTS EVALUATION*Park-Wide Goals and Guidelines*

Resource	No Project	Preferred Alternative	Alternative 3	Alternative 4
Invasive Exotic Plant Species	Moderate	Moderate	Moderate	Moderate
Vegetation Management	Moderate	Moderate	Moderate	Moderate
Cultural Resource Management	No Impact	Moderate	Moderate	Moderate
Wildlife Management	No Impact	No Impact	No Impact	No Impact
Watershed/Water Quality Management	No Impact	No Impact	No Impact	No Impact
Visual Resources	No Impact	No Impact	No Impact	No Impact
Unitwide Interpretation	Moderate	Moderate	Moderate	Moderate
Visitor Services			see below	
Visitor Capacity			see below	
Park Operations			see below	

Species Area Goals and Guidelines

Management Zone	No Project	Preferred Alternative	Alternative 3	Alternative 4
Nimbus Dam	No Impact	No Impact	No Impact	No Impact
Nimbus Flat/Shoals	No Impact	Moderate	Low	Low
Lake Overlook	Low	Moderate	Low	Moderate
Mississippi Bar	Low	Moderate	High	Moderate
Negro Bar	No Impact	High	Moderate	Moderate
Natoma Canyon	No Impact	No Impact	No Impact	No Impact
Folsom Powerhouse	Low	High	High	High
Natoma Shore North	No Impact	No Impact	Moderate	No Impact
Natoma Shore South	High	High	Moderate	No Impact
Lower Lake Natoma (AQ)	No Impact	No Impact	No Impact	No Impact
Upper Lake Natoma (AQ)	No Impact	No Impact	No Impact	No Impact
Folsom Dam	No Impact	High	High	High
Beals Point	No Impact	Low	Low	Low
Mooney Ridge	High	Low	Low	Low
Granite Bay South	No Impact	High	High	High
Granite Bay North	High	Low	Moderate	Low
Placer Shore	No Impact	Low	Low	Low
Rattlesnake Bar	High	High	High	Low
North Fork Shore	Low	Low	Low	Low
Anderson Island	No Impact	No Impact	No Impact	No Impact
Peninsula	High	High	High	High
Darrington	No Impact	Low	Low	Low
Skunk Hollow/Salmon Falls	Low	Moderate	Moderate	Moderate
El Dorado Shore	High	Low	High	Low
Brown's Ravine	High	High	High	High
Mormon Island Cove	Low	Low	High	Low
Mormon Island Preserve	Low	Low	Low	Low
Folsom Point	Moderate	High	High	High
Folsom Lake (AQ)	No Impact	No Impact	No Impact	No Impact
Middle North Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Upper North Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Middle South Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Upper South Fork (AQ)	No Impact	No Impact	No Impact	No Impact

- Guideline GEO-5: Site park facilities to avoid geologic hazards. Where existing facilities are already located in hazardous areas, examine the feasibility of relocating the facility or mitigating any risks to human life or property.
- Guideline GEO-6: Protect natural caves and the natural resources within caves, including sub-surface water quality. Prior to permitting any public entry and use of caves, develop a cave management plan which ensures the natural resources and geologic features in the cave will be protected and provides for human safety. If these conditions cannot be met consider closing cave to public access and use.
- Guideline SOILS-1: Minimize soil excavation, erosion, soil migration in the construction and operation of facilities. Minimize human-induced erosion by reducing concentrated run-off, avoiding over-watering with irrigation systems and limiting disturbance to fragile soils.
- Guideline NEGROBAR-20: Study additional methods for protecting park users on the Lake Natoma bike path from rock falls along Natoma Bluffs.
- Guideline SUSTAIN-1: *Sustainable Sites*: Minimize the negative environmental impacts associated with site enhancement, development, maintenance, and operations activities by considering the following guideline when implementing the Plan:
- Minimize impact during construction. Prepare and implement site sedimentation and erosion control plans. Limit heavy equipment access.

4.4.4.3.2 *Impacts*

Impact GEO-1: Development and expansion of recreational and interpretive facilities in certain areas of the park could expose visitors to adverse impacts related to landslides (Significance Criterion GEO-a).

As described above, landslide conditions may be present in areas of the park and the steep bluffs along the northwest side of Lake Natoma are known to be unstable. Development of

recreational facilities in these areas could expose people or structures to potential adverse effects due to landslides.

Mitigation Measure GEO-1: Prior to approval of the building plans for specific site facilities, as needed and where appropriate, a geotechnical study shall be completed by an engineering geologist or equivalent professional to evaluate surface soil conditions. This report shall include slope geometries, performance of a geotechnical review of final design documents, and provision of oversight by a geotechnical engineer during construction. The project applicant/contractor shall incorporate the recommendations of the geotechnical study into the design for all structures proposed at the site.

Impact GEO-2: The execution of a prescribed burn program and development of recreational, interpretive and administrative facilities that would include substantial grading activities could result in soil erosion and dust/asbestos propagation (Significance Criterion GEO-a and GEO-b).

Construction of proposed facilities would require grading for proposed roadways, development pads, and infrastructure. Exposed soils are considered erodible when subjected to concentrated surface flow or wind. Soils are also more likely to erode after a burn. Increased erosion may occur on unprotected rough graded surfaces if they are exposed to rainfall, surface runoff, and wind. Specific area impacts related to erosion are described below.

Mitigation Measure GEO-2a: The Unit-wide Burn Plan currently being prepared by State Parks shall address specific site soil conditions susceptible to erosion when recommending prescribed burns.

Mitigation Measure GEO-2b: Prior to approval of improvement plans for site development, an erosion control plan shall be prepared that includes Best Management Practices (BMPs) to minimize erosion. Erosion control measures shall include techniques such as physical and vegetative stabilization measures and runoff diversion measures, retention of vegetation, hydroseeding, geotextiles and mats, and straw bale or sandbag barriers and avoidance of grading activities near water channels to the maximum extent feasible. The project shall also comply with applicable federal and State codes and regulations and adopted standards.

Mitigation Measure GEO-2c: In order to offset any potential risks of exposure to, or if NOA baring soil or rock is identified during construction activities, the

standards identified in Section 93105 of the ATCM For Construction, Grading, Quarrying, and Surface Mining Operations, shall be followed as precaution. Air district ordinances will apply as applicable. (Refer to Section 4.4.11, Air Quality, for additional information).

Specific area impacts related to geology and soils are described below.

PARK-WIDE GOALS AND GUIDELINES

Invasive Exotic Plant Species

All Alternatives: Moderate Impact

Implementation of prescribed burns to control invasive exotic plant species could result in soil erosion. Intense prescribed fire could cause excessive sedimentation and soil erosion due to the removal of canopy species and the loss of soil-binding ability of subcanopy and herbaceous vegetation roots. State Parks has prepared a draft Unit-wide Burn Plan for the Folsom Lake State Recreation Area. Implementation of Mitigation Measure GEO-2a, described above, would reduce potential impacts to a level below significance.

Vegetation Management

All Alternatives: Moderate Impact

See “Invasive Exotic Plant Species” above.

Cultural Resource Management

Preferred Alternative, Alternative 3 and Alternative 4: Moderate

Implementation of these alternatives would result in the additional development of interpretive facilities, such as the State Indian Museum and the Negro Bar Cultural Center at various locations within the park. Erosion impacts related to development of these facilities are addressed by management zone in the Specific Area Goals and Guidelines section below.

Unitwide Interpretation

All Alternatives: Moderate Impact

Implementation of these alternatives would result in the additional development of interpretive facilities, such as the State Indian Museum and the Negro Bar Cultural Center at various locations within the park. Erosion impacts related to development of these facilities are addressed by management zone in the Specific Area Goals and Guidelines section below.

SPECIFIC AREA GOALS AND GUIDELINES

Nimbus Flat/Shoals

Preferred Alternative: Moderate Impact

Implementation of the Preferred Alternative could result in the development of a multi-use facility at Nimbus Flat to include flexible classroom and event space, kitchen facilities, storage, administrative area, exhibit area, and other visitor service facilities. Construction of these facilities could include substantial grading activities that could result in soil erosion. Implementation of the guidelines and Mitigation Measures GEO-2b and GEO-2c, described above, would reduce potential impacts to a level below significance.

Lake Overlook

Preferred Alternative, Alternative 4: Moderate Impact

Implementation of these alternatives would result in the additional development of day-use facilities, including a vista point/viewing platform, formalized trailheads, interpretive displays, and shade armadas. Construction of these facilities could include substantial grading activities that could result in soil erosion. Implementation of the guidelines and Mitigation Measures GEO-2b and GEO-2c, described above, would reduce potential impacts to a level below significance.

Mississippi Bar

Preferred Alternative, Alternative 4: Moderate Impact

Expansion of development at Mississippi Bar to include picnic areas, vehicle access, parking, toilets, and drinking water, could include substantial grading activities that could result in soil erosion. Implementation of the guidelines and Mitigation Measures GEO-2b and GEO-2c, described above, would reduce potential impacts to a level below significance.

Alternative 3: High Impact

The additional development of day-use facilities, including a visitor/interpretive center, boat house and docks, picnic sites, entrance station, and parking and expansion of the Shadow Glen concession could include substantial grading activities that could result in soil erosion. Implementation of the guidelines and Mitigation Measures GEO-2b and GEO-2c, described above, would reduce potential impacts to a level below significance.

Negro Bar*Preferred Alternative: High Impact*

Implementation of the Preferred Alternative would result in the development of the Negro Bar Cultural Center and expansion of interpretive facilities that could include substantial grading activities that could result in soil erosion. Development of these additional facilities could also increase use of the Lake Natoma bike path below the Lake Natoma (Orangevale) bluffs thereby exposing greater numbers of visitors to potential hazards from rock falls. Management direction for this zone includes studying additional methods for protecting park users on the Lake Natoma bike path from rock falls along Natoma Bluffs (NEGROBAR-20). With implementation of this guideline and Mitigation Measures GEO-1, GEO-2b, and GEO-2c, described above, impacts would be reduced to a level below significance.

Alternative 3: Moderate Impact

Expansion of the group camping area, day use beach area, and existing boat ramp and development of a paddling facility/boathouse could include substantial grading activities that could result in soil erosion. Development of these additional facilities could also increase use of the Lake Natoma bike path below the Lake Natoma (Orangevale) bluffs thereby exposing greater numbers of visitors to potential hazards from rock falls. Management direction for this zone includes studying additional methods for protecting park users on the Lake Natoma bike path from rock falls along Natoma Bluffs (NEGROBAR-20). With implementation of this guideline and Mitigation Measures GEO-1, GEO-2b, and GEO-2c, described above, impacts would be reduced to a level below significance.

Alternative 4: Moderate Impact

Implementation of Alternative 4 would result in the expansion of recreation and interpretive facilities in the developed portion of Negro Bar. Development of these additional facilities could increase use of the Lake Natoma bike path below the Lake Natoma (Orangevale) bluffs thereby exposing greater numbers of visitors to potential hazards from rock falls. Management direction for this zone includes studying additional methods for protecting park users on the Lake Natoma bike path from rock falls along Natoma Bluffs (NEGROBAR-20). With implementation of this guideline and Mitigation Measure GEO-1a, described above, impacts would be reduced to a level below significance.

Folsom Powerhouse*Preferred Alternative, Alternative 3 and Alternative 4: High Impact*

Development of a visitor center and expansion of the parking area could include substantial grading activities that could result in soil erosion. Implementation of the guidelines and Mitigation Measures GEO-2b and GEO-2c, described above, would reduce potential impacts to a level below significance.

Natoma Shore North*Alternative 3: Moderate Impact*

The conversion of informal trail corridors to formal trails could promote soil erosion. Implementation of the guidelines and Mitigation Measures GEO-2b and GEO-2c, described above, would reduce potential impacts to a level below significance.

Natoma Shore South*No Project and Preferred Alternative: High Impact*

Development of the State Indian Museum could include substantial grading activities that could result in soil erosion. Implementation of the guidelines and Mitigation Measures GEO-2b and GEO-2c, described above, would reduce potential impacts to a level below significance. The No Action/No Project Alternative would not implement the guidelines developed for the Plan.

Alternative 3: Moderate Impact

Implementation of Alternative 3 would result in the expansion of day use facilities in the Willow Creek area, including the development of formalized picnic sites, boat ramp, boat dock, and expanded parking area. Construction of these facilities could include substantial grading activities that could result in soil erosion. Implementation of the guidelines and Mitigation Measures GEO-2b and GEO-2c, described above, would reduce potential impacts to a level below significance.

Folsom Dam*Preferred Alternative, Alternative 3, and Alternative 4: High Impact*

Development of a consolidated administrative complex, including offices, a visitor center, and an expanded American River Water Education Center, could include substantial grading activities that could result in soil erosion. Implementation of the guidelines and Mitigation Measures GEO-2b and GEO-2c, described above, would reduce potential impacts to a level below significance.

Mooney Ridge*No Project: High Impact*

Development of a 200-slip marina with snack bar, boating equipment rental, ferry terminal, 250 parking spaces, operations dock/office and restrooms, could include substantial grading activities that could result in soil erosion. Expansion of recreational facilities would increase visitation in this management zone and expose greater number of visitors to potential landslide hazards. Implementation of Mitigation Measures GEO-1, GEO-2b, and GEO-2c, described above, would reduce potential impacts to a level below significance.

Granite Bay South*Preferred Alternative, Alternative 3, Alternative 4: High Impact*

Reconfiguration of the vehicle entrance, boat launch complex, and main beach parking area; expansion of the Activity Center; and development of additional facilities including lifeguard tower and dry dock storage facility could include substantial grading activities which could result in soil erosion. Implementation of Mitigation Measures GEO-2b and GEO-2c, described above, would reduce potential impacts to a level below significance.

Granite Bay North*No Project: High Impact*

The addition of 250 parking spaces, paved roads, and paved access to just below the high water mark at Oak Point/Dotons Point could include substantial grading activities that could result in soil erosion. Granite Bay North is moderately likely to contain NOA and local faults or shearing could expose bedrock baring NOA. Implementation of Mitigation Measures GEO-2b and GEO-2c, described above, would reduce potential impacts to a level below significance.

Alternative 3: Moderate Impact

The addition of a formal beach at Oak Point with parking for approximately 100 vehicles and the expansion of the equestrian staging area could include substantial grading activities that could result in soil erosion. Granite Bay North is moderately likely to contain NOA and local faults or shearing could expose bedrock baring NOA. Implementation of the guidelines and Mitigation Measures GEO-2b and GEO-2c, described above, would reduce potential impacts to a level below significance.

Rattlesnake Bar*No Project, Preferred Alternative, Alternative 3: High Impact*

Implementation of these alternatives would result in additional development of recreation and administrative facilities that could include picnic facilities, shade armadas, vault toilets, additional parking, equestrian staging area, trail camp, and staff residence. Construction of these facilities could include substantial grading activities that could result in soil erosion. Implementation of the guidelines and Mitigation Measures GEO-2b and GEO-2c, described above, would reduce potential impacts to a level below significance. The No Action/No Project Alternative would not implement the guidelines developed for the Plan.

Peninsula*No Project: High Impact*

The additional development of shower facilities, RV sanitary station, 200 picnic sites and beach, loop trail, trail staging area and trail camp could include substantial grading activities that could result in soil erosion. Implementation of Mitigation Measures GEO-2b and GEO-2c, described above, would reduce potential impacts to a level below significance.

Preferred Alternative and Alternative 4: High Impact

The additional development of 50 campsites and trailhead facilities could include substantial grading activities that could result in soil erosion. Implementation of the guidelines and Mitigation Measures GEO-2b and GEO-2c, described above, would reduce potential impacts to a level below significance.

Alternative 3: High Impact

The additional development of 100-200 campsites and marina could include substantial grading activities that could result in soil erosion. Implementation of the guidelines and Mitigation Measures GEO-2b and GEO-2c, described above, would reduce potential impacts to a level below significance.

Skunk Hollow/Salmon Falls*Preferred Alternative, Alternative 3, Alternative 4: Moderate Impact*

The creation of a new trail corridor from Skunk Hollow to a potential BLM trail along the shoreline could promote soil erosion. On the north side of the South Fork of the American River, Skunk Hollow/Salmon Falls is within the quarter mile buffer for more likely to contain NOA or fault line. On the south side of the river, Skunk Hollow/Salmon Falls is more likely to contain NOA (El Dorado County 2005).

Implementation of the guidelines and Mitigation Measures GEO-2b and GEO-2c, described above, would reduce potential impacts to a level below significance.

El Dorado Shore

No Project Alternative: High Impact

The development of 80 campsites, RV sanitary station, boat dock, boat camping, swim beach with restrooms and trail staging area in the vicinity of New York Creek/Monte Vista could include substantial grading activities that could result in soil erosion. Parts of El Dorado Shore are more likely to contain NOA or are within the quarter mile buffer for more likely to contain NOA or fault line (El Dorado County 2005). Implementation of Mitigation Measures GEO-2b and GEO-2c, described above, would reduce potential impacts to a level below significance.

Alternative 3: High Impact

The development of paved formalized parking areas at Sweetwater Creek, a major trailhead and staging facility at Falcon Crest and day use facilities in the vicinity of the former Monte Vista campground could include substantial grading activities that could result in soil erosion. Parts of El Dorado Shore are more likely to contain NOA or are within the quarter mile buffer for more likely to contain NOA or fault line (El Dorado County 2005). Implementation of the guidelines and Mitigation Measures GEO-2b and GEO-2c, described above, would reduce potential impacts to a level below significance.

Brown's Ravine

No Project: High Impact

Implementation of the No Project Alternative would result in development of additional facilities to include dry boat storage and repair building, 100 additional boat slips, and office/storage building for lake patrol. Construction of these facilities could include substantial grading that could result in soil erosion. Implementation of Mitigation Measures GEO-2b and GEO-2c, described above, would reduce potential impacts to a level below significance.

Preferred Alternative, Alternative 4: High Impact

Implementation of these alternatives would result in development of additional facilities to include additional boat slips and a multi-use facility. It would also entail extension of the existing dock system, reconfiguration of the marina and Hobie Cove boat ramps, and upgrade of the storm water system. Construction of these facilities could include substantial grading that could result in soil erosion. Implementation of

the guidelines and Mitigation Measures GEO-2b and GEO-2c, described above, would reduce potential impacts to a level below significance.

Alternative 3: High Impact

Under this alternative, Brown's Ravine Marina would be expanded into Mormon Island Cove potentially resulting in increased soil erosion. See "Mormon Island Cove" below.

Mormon Island Cove

Alternative 3: High Impact

The expansion of Brown's Ravine Marina into this zone, including roads, parking areas, boat ramps, slips, dry storage and other facilities, could include substantial grading activities that could result in soil erosion. Implementation of the guidelines and Mitigation Measures GEO-2b and GEO-2c, described above, would reduce potential impacts to a level below significance.

Folsom Point

No Project: Moderate Impact

The additional development of a visitor/orientation center that may include a restaurant at Observation Point could include substantial grading activities that could result in soil erosion. Folsom Point is within the Copper Hill Volcanics that are more likely to contain NOA (CGS 2006). Implementation of Mitigation Measures GEO-2b and GEO-2c, described above, would reduce potential impacts to a level below significance.

Preferred Alternative, Alternative 4: High Impact

Implementation of these alternatives would result in the additional development of a multi-use facility at Folsom Point as well as reconfiguration of the picnic area and the boat ramp, expansion of the parking area, and provision of restrooms and drinking water. It would also entail development of a trailhead at Dike 7, a Class I bike path to Mormon Island Cove, and promotion of a Class I bike path across the canyon on the new Folsom Dam Road. Development of these facilities could include substantial grading activities that could result in soil erosion. Folsom Point is within the Copper Hill Volcanics that are more likely to contain NOA (CGS 2006). Implementation of the guidelines and Mitigation Measures GEO-2b and GEO-2c, described above, would reduce potential impacts to a level below significance.

Alternative 3: High Impact

Implementation of Alternative 3 would result in the additional development of a multi-use facility at Folsom Point as well as expansion of boat ramp parking and development of a formal beach area. Like the Preferred Alternative and Alternative 4, it would also entail development of a trailhead at Dike 7, a Class I bike path to Mormon Island Cove, and promotion of a Class I bike path across the canyon on the new Folsom Dam Road. Development of these facilities could include substantial grading activities that could result in soil erosion. Folsom Point is within the Copper Hill Volcanics that are more likely to contain NOA (CGS, 2006). Implementation of the guidelines and Mitigation Measures GEO-2b and GEO-2c, described above, would reduce potential impacts to a level below significance.

Implementation of the above listed mitigation measures would reduce impacts affecting geology and soils to less than significant levels. Consequently, the conditions included in the Significance Criteria (GEO-a through GEO-e) have been addressed.

4.4.5 Biological Resources

4.4.5.1 Affected Environment

4.4.5.1.1 Setting

The following discussion summarizes information contained in the Natural Resources chapter of the Folsom Lake State Recreation Area Resource Inventory dated January 2004 (Resource Inventory).¹

The Unit supports nine major terrestrial vegetation communities that are typical of the lower foothills of California's Central Valley (See Figures II-6 and II-7 in the Plan). These vegetation communities, in turn, provide habitat for a diverse mix of terrestrial and aquatic fauna, including several special status species. Upland plant communities (non-wetland) include chamise chaparral, interior live oak woodland/blue oak woodland and savanna, California annual grassland, and cottonwood and willow riparian. There is also a significant portion of upland habitat in the Unit that is dominated by weedy plant species; this vegetation community has been classified as ruderal and barren habitat in the Resources Inventory. Wetland plant communities in the Unit can be classified into three types: freshwater marsh, seasonal wetland, and northern claypan/hardpan vernal pool. In addition, lake shoreline fluctuation zones support a mix of plant species that are adapted to both wet and drier environments, and are considered as a distinct habitat. Furthermore, the Unit contains substantial aquatic habitat, such as lakes and ponds, that support aquatic plant growth. A complete list of all plant and wildlife species known to occur or potentially occurring in the Unit is provided in the Resource Inventory.

UPLAND PLANT COMMUNITIES AND ASSOCIATED WILDLIFE SPECIES

The *Chamise chaparral* community is dominated by chamise (*Adenostema fasciculatum*), an evergreen shrub that accounts for more than 60 percent of the vegetative cover. Roughly 450 acres of chaparral can be found in the park, primarily along the steep south- and southwestern-facing slopes of the upper reaches of the South Fork of the American River. Chaparral is prone to frequent fires and cannot perpetuate itself in the absence of it. Where fire is not suppressed, chaparral typically burns on a 10- to 40-year cycle. Where fire is suppressed, grasses fill the openings created by dead chamise. Eleven special status plant species have the potential to occur in the park's chaparral community, particularly where this community occurs on gabbroic or serpentine soil types. Five of these plant species are federally listed as Threatened or Endangered.

¹ The Resource Inventory is a public document that is available on the Folsom Lake State Recreation Area website at http://www.parks.ca.gov/default.asp?page_id=500.

Chamise chaparral provides habitat for animal species that rely on its dense vegetation to provide cover. Most species are likely to forage in nearby woodlands and grasslands where palatable plant species and prey are more common and accessible. Common amphibian and reptile species include the western fence lizard (*Sceloporus occidentalis*), California whipsnake (*Masticophis lateralis*), and western rattlesnake (*Crotalus viridis*). Birds, foraging primarily for seeds, include the western scrub jay (*Aphelocoma coerulescens*), white-crowned sparrow (*Zonotrichia leucophrys*), and American goldfinch (*Carduelis tristis*). The vegetation also provides good foraging habitat for predatory birds, such as the red-tailed hawk (*Buteo jamaicensis*), turkey vulture (*Cathartes aura*), and American kestrel (*Falco sparverius*). Numerous mammals inhabit this area, including various species of mole, mice, and rabbit. Larger species include the bobcat (*Felis rufus*), coyote (*Canis latrans*), and mule deer (*Odocoileus hemionus*). Four special status wildlife species are known or likely to occur in the vicinity of the park's chaparral community, including: California horned lizard (*Phrynosoma coronatum frontale*), peregrine falcon (*Falco peregrinus*), and prairie falcon (*Falco mexicanus*).

The park supports two types of oak dominated communities: ***Interior live oak woodland and blue oak woodland/savanna***. The interior live oak (*Quercus wislizenii*) woodland (about 3,900 acres in the park) ranges in appearance from closed canopy forest to open canopied woodland with a shrub layer of varying density and height. The blue oak (*Quercus douglasii*) woodland/savanna (about 1,900 acres in the park) ranges in appearance from closed canopy forest to open canopied savanna with only a few trees per acre and a dense shrub layer or open grassland understory. Both communities provide a structurally diverse habitat that is attractive to wider range of resident species than found in other upland habitats in the park. Fourteen special status plant species have the potential to occur in the park's oak woodland and savanna communities.

The trees and shrubs of the *Interior live oak woodland and blue oak woodland/savanna* provide much for animal species. Longhorn beetles (Cerambycids) and underwing moths (*Catocala sp.*) hiding in tree bark are a source of food for acorn woodpeckers (*Melanerpes formicivorus*), western fence lizards, and white-breasted nuthatches (*Sitta carolinensis*). Trees also provide locations for bird perching, food, and nesting. Large trees provide nesting sites for the golden eagle (*Aquila chrysaetos*), bald eagle (*Haliaeetus leucocephalus*), and red-tailed hawk, which require the height of tall trees to protect their nests. Herons and egrets use foothill pines as nesting sites in locations where oak woodlands occur in the vicinity of Folsom Lake and Lake Natoma. The dense vegetation in oak woodlands also provides concealment for large predators, such as mountain lions (*Felis concolor*), and bobcats, as they hunt. Five special status wildlife species are known or likely to occur in the vicinity of the park's woodland community, including: valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*),

golden eagle, bald eagle, sharp-shinned hawk (*Accipiter striatus*), Cooper's hawk (*Accipiter cooperi*), and long-eared owl (*Asio otus*).

California annual grassland in the park is typically dominated by non-native annual grass species such as ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), wild oats (*Avena fatua*), and brachypodium (*Brachypodium distachyon*). However, in a few locations, native grasses such as deergrass (*Muhlenbergia rigens*), purple needlegrass (*Nassella pulchra*), and various native wildflowers are present in varying degrees. Roughly 1,100 acres of this community exist in the park. Invasive exotic species—such as yellow starthistle (*Centaurea solstitialis*), medusa head (*Taeniatherum caput-medusae*), and mustard (*Brassica nigra*)—are rapidly diminishing the habitat quality of the park's grasslands and associated and savanna areas. Occasional fires will help maintain grasslands. No special status plant species associated solely with grasslands are known to occur in the park.

California annual grassland in the park supports similar fauna as the oak savanna habitats. The large number of herbivores and insectivores foraging in grasslands and savannas provide a substantial prey base for many predatory species, such as the common king snake (*Lampropeltis getulus*), red-tailed hawk, and coyotes. Most species of raptors, including red-tailed hawk, white-tailed kite (*Elanus leucurus*), and golden eagle, will forage in these habitats and will sometimes nest in nearby trees. Introduced animal species observed in this habitat include the starling (*Sturnus vulgaris*), rock dove (*Columba livia*), wild turkey (*Meleagris gallopavo*), and Virginia opossum (*Didelphia virginiana*).

The *Cottonwood/willow riparian* communities in the park (about 390 acres) are dominated by Fremont cottonwood (*Populus fremontii*), black willow (*Salix gooddingii*), arroyo willow (*Salix lasiolepis*), and narrowleaf willow (*Salix exigua*), and occur along rivers, streams, and portions of lake shoreline where moist soils support different vegetation than the drier upland areas. Although many riparian habitats in the park have been disturbed and/or fragmented, the structural diversity of this community supports a greater diversity of wildlife species. The single special status plant species known to occur in this community is the Northern California black walnut (*Juglans californica*).

The *Cottonwood/willow riparian* communities in the park provide significant food, shelter, cover, and nesting opportunities for wildlife. Compared to the drier oak woodlands, the riparian woodland's insect diversity, dense understory vegetation, and presence of relatively mature canopy are better suited to migratory bird species – the western kingbird (*Tyrannus verticalis*), common yellowthroat (*Geothlypis trichas*), blue-gray gnatcatcher (*Polioptila caerulea*), and tree swallow (*Tachycineta bicolor*). Species such as the red-shouldered hawk

(*Buteo lineatus*) and duskyfooted woodrat (*Neotoma fuscipes*) are adapted to live in the denser canopies and willow thickets of the riparian habitat. Common raptor species found in riparian woodlands include red-tailed hawk, Cooper's hawk, and sharp-shinned hawk. Where riparian woodlands pass through grassland or savanna habitats, the dense vegetation and taller trees provide the only suitable retreat for species such as mule deer and gray fox (*Urocyon cinereoargenteus*). Ten special status wildlife species are known or have the potential to occur in the vicinity of the park's riparian areas, including: valley elderberry longhorn beetle, California red-legged frog (*Rana aurora draytonii*), western pond turtle (*Clemmys marmorata*), golden eagle, bald eagle, sharp-shinned hawk, Cooper's hawk, willow flycatcher (*Empidonax traillii*), yellow warbler (*Dendroica petechia*), and yellow-breasted chat (*Icteria virens*).

Ruderal and barren areas (roughly 1,040 acres in the park) exist along roadsides, in boat-launch aprons, camping and picnic areas, and other areas where human activity has compacted the soil or otherwise heavily impacted the vegetation. These areas also include the dredge deposits along the shores of Lake Natoma resulting from placer gold-mining activities. This community is dominated by a mix of weedy plant species typical of Northern and Central California. Common species include those found in the non-wetland areas of the shoreline fluctuation zone, as well as invasive exotic plant species such as yellow starthistle, Italian thistle (*Carduus pycnocephalus*), and white sweet clover (*Melilotus albus*). No special status plant species are associated with this community.

Lake shoreline fluctuation zones on Folsom Lake support a mix of plant species that are adapted to wet environments and to drier, ruderal conditions. Following the annual drop in lake level, stands of common broadleaf forbs colonize the newly-exposed soils, producing wildflower displays from such species as miniature lupine (*Lupinus bicolor*), butter and eggs (*Triphysaria eriantha*), mustard (*Brassica rapa*), and pearly everlasting (*Anaphalis margaritacea*). Later in the season, sparse non-native annual grasses including wild oat, ripgut brome, and Italian ryegrass (*Lolium multiflorum*) dominate. Most of the shoreline zone plant community is arrested in an early successional stage by seasonal changes in water level and human activities, such as driving vehicles below waterline during low pool periods. No special status plant species are associated with this community.

Lake shoreline fluctuation zones and **ruderal and barren areas** are typically frequented by wildlife species associated with open habitats, such as grasslands and oak savannas. Several species of birds, such as rock wren (*Salpinctes obsoletus*) and rufous-crowned sparrow (*Aimophila ruficeps*) are commonly seen foraging in these areas. Ground squirrels (*Spermophilus beecheyi*) will commonly burrow into exposed soils and shorebirds such as the

western sandpiper (*Calidris mauri*), spotted sandpiper (*Actitis macularia*), and killdeer (*Charadrius vociferous*) will forage in the shallow water along the barren shoreline. Canada geese (*Branta canadensis*) forage within areas of turf and lawn and larger mammals such as mule deer, mountain lion, and black bear (*Ursus americanus*) have been observed using these areas as movement corridors. The shoreline zone of Folsom Lake is the most significant example of this corridor function in the park, particularly the shoreline interconnect several oak woodland, grassland, and riparian woodland habitats. These habitat areas are effectively isolated until the water levels recede, allowing for wildlife to resume movement along the exposed lake shoreline zones. Although no special status plant species are associated with this community, there is potential habitat for the valley elderberry longhorn beetle, a federally threatened species.

WETLAND PLANT COMMUNITIES AND ASSOCIATED WILDLIFE SPECIES

Wetland habitat is usually subject to U.S. Army Corps of Engineers jurisdiction under Section 404 of the Clean Water Act, and Regional Water Quality Control Board jurisdiction under Section 410 of the Clean Water Act. The limits of jurisdictional area are defined by the Corps' "three parameter test" which requires that there be (1) a predominance of hydrophytic plant species (*i.e.*, plants that are tolerant of or require extended periods of inundation or soil saturation); (2) evidence of hydric soils (soils with characteristic typical of saturated or ponded conditions for extended periods); and (3) hydrological conditions suggesting extended periods of ponding or soil saturation (Environmental Laboratory 1987).

Roughly 10 acres of *Freshwater Marsh* exist in the park, characterized by dense stands of perennial, emergent marsh vegetation, such as cattails (*Typha* spp.) and bulrush (*Scirpus californicus*) up to 5 meters in height. Dense stands of shorter-statured marsh plants are found at marsh edges, while the interiors are often broken by open patches of water, often choked with smartweed (*Polygonum* sp.) and floating pond weeds. A number of exotic non-native species, including pampas grass (*Cortaderia selloana*), yellow iris (*Iris pseudacorus*), and giant reed grass (*Arundo donax*) are known to occur within freshwater marsh. No special status plant species associated solely with freshwater marsh habitat occur within the park.

With its unique combination of land, shallow water, and dense vegetation, *freshwater marsh* provides habitat for many species of wildlife. The water in marsh habitats supports the micro-invertebrates that serve as the base of most aquatic food chains while the presence of extensive vegetation supports many of the herbivorous species that begin the terrestrial food chain. Several species of bird nest only in the dense vegetation of emergent marsh, including the American bittern (*Botaurus lentiginosus*) and red-winged blackbird (*Agelaius phoeniceus*). Five special status wildlife species are known or likely to occur in the vicinity of the park's

freshwater marsh areas, including: California red-legged frog, western pond turtle, tricolored blackbird (*Agelaius tricolor*), northern harrier (*Circus cyaneus*), and white-tailed kite.

Seasonal wetlands in the park are characterized by limited periods of surface waters—generally no deeper than 1 or 2 feet and usually for a period of between 1 and 4 months—and/or soil saturation during the rainy season. These conditions support a plant community dominated by sedges (*Carex* spp. and *Cyperus* spp.), rushes (*Juncus* spp), and spikerush (*Eleocharis* spp.). Seasonal wetlands comprise roughly 3-5 acres of the park, primarily along streams. All of the special status plant species that may occur in vernal pools may also occur in seasonal wetlands, depending on the degree of disturbance and hydrological conditions.

Northern claypan and Northern hardpan vernal pools (between 0.5 and 2 acres in the park) are identified by low herbaceous vegetation of hydrophytic species and a shallow layer of impermeable clay soil that forms a water-tight basin. Water from winter rain and overland flow creates these shallow wetlands that typically dry up during the late spring and fill again the following winter. In early mid-spring, relatively undisturbed pools are dominated by native annuals such as Sacramento pogogyne (*Pogogyne ziziphoroides*), vernal pool buttercup (*Ranunculus bonariensis* var. *trisepalus*), and downingia (*Downingia ornatissima*). These species give way in late spring/early summer to annual hairgrass (*Deschampsia danthonioides*), goldfields (*Lasthenia* spp.), and coyote thistle (*Eryngium castrense*). Since vernal pools contain a large number of species that occur in no other habitat, this habitat constitutes one of the most sensitive in the park and may support up to seven special status plant species, including three that are federal and/or state listed species.

Because *seasonal wetlands and vernal pools* typically do not contain fish, several amphibians—the western spadefoot (*Spea [Scaphiopus] hammondi*) and Pacific treefrog (*Pseudacris [Hyla] regilla*) for instance—use vernal pools for egg laying and larval habitat. Herbivores, such as mule deer and California vole (*Microtus californicus*) that feed on grassland forage will take advantage of the greener vegetation growing in seasonal wetlands as the grass and other forage in upland areas dries out. Several species of crustacean are able to survive the extreme conditions of this habitat, primarily vernal pools, with an accelerated life cycle that is completed within the short period of time water persists in the pools. In addition, several species of solitary bees are specialized to pollinate only vernal pool flowers during their blooming periods. Two special status wildlife species are known or likely to occur in the vicinity of the park's freshwater marsh areas, including: vernal pool fairy shrimp (*Branchinecta lynchi*) and western spadefoot toad.

AQUATIC HABITATS

Lake Natoma and Folsom Lake are artificial impoundments that consist of large expanses of open water with aquatic and emergent vegetation. Rooted aquatic vegetation is rare throughout most of Folsom Lake. This lack of aquatic vegetation may be a function of turbid water conditions limiting light penetration, plus a decreasing water level as the summer progresses that exposes large areas of formerly submerged substrate. Aquatic vegetation in Lake Natoma is restricted to intrusions of water hyacinth (*Eichhornia crassipes*) in the areas of Alder Creek and Willow Creek, duckweed (*Lemna* sp.) in Alder Creek, and several other aquatic plant species in the backwaters of the State-owned portion of Mississippi Bar. These shallow ponds may contain waterweed (*Elodea* spp.), *Potamogeton* spp., and *Myriophyllum* spp., all of which are submerged species. However, at the time of observation in October 2002, these ponds were 80 percent covered with Eurasian milfoil (*Myriophyllum spicatum*) with sparse false loosestrife (*Ludwigia peploides*) along the edges. Riparian woodland habitat grows along their edges in some shallow locations.

Both lakes annually produce large numbers of aquatic insects and micro-invertebrates that support an extensive aquatic fishery as well as large seasonal congregations of migratory water birds. Common bird species found in the lakes include pintail (*Anas acuta*), canvasback (*Aythya valisineria*), green-winged teal (*Anas crecca*), Canada geese and mallards (*Anas platyrhynchos*). The lakes provide habitat for oceanic species that move inland, such as white pelican (*Pelecanus erythrorhynchos*) and lesser scaup (*Aythya affinis*), and temporary refuge for accidental species such as black scoter (*Melanitta nigra*) and common tern (*Sterna hirundo*).

Folsom Lake supports both warm water and cold water fish species due to thermal stratification during the summer months. Thermal stratification results in an upper layer of warm water, a narrow zone of rapid temperature transition, and a lower layer of cold water. Warm water sport fish present in the lake are non-native and include largemouth bass (*Micropterus salmoides*), smallmouth bass (*M. dolomieu*), spotted bass (*M. punctulatus*), sunfish (*Lepomis* spp.), and black and white crappie (*Promoxis nigromaculatus* and *P. annularis*). Cold water sport fish species include rainbow trout (*Oncorhynchus mykiss*), brown trout (*Salmo trutta*), and chinook salmon (*O. tshawytscha*). Native warm water fishes present in the lakes include Sacramento squawfish (*Ptychocheilus grandis*), hardhead (*Mylopharodon conocephalus*), California roach (*Hesperoleucus symmetricus*) and Sacramento sucker (*Catostomus occidentalis*). These fish species are all associated with streams in the Sacramento-San Joaquin River system as well as streams in the Sierra Nevada foothills, and are presumed to have been historically present in the American River prior to construction of the Folsom and Nimbus Dams.

Rainbow trout and Chinook salmon are periodically stocked from hatcheries into Folsom Lake. Rainbow trout reproduce in the North and South Forks of the American River, but the vast majority of rainbow trout caught in the lake are hatchery-released fish. Landlocked Chinook salmon ascend tributaries of Folsom Lake to spawn, however, the California Department of Fish and Game (CDFG) has not found their progeny in Folsom Lake.

Lake Natoma is not a particularly productive fishery due to the effects of water temperature variability associated with the lake's function as a regulating afterbay for Folsom Dam. Water released from Folsom Dam gradually warms as it spreads over the wider portions of Lake Natoma, creating conditions more favorable for warm water fish species. Fish species found in the lake are generally the same as those found in Folsom Lake. While CDFG annually stocks the lake with rainbow trout, warm water species predominate.

While no special status fish species are known to occur in Folsom Lake or Lake Natoma, the cold water releases from these reservoirs are critical to creating favorable flow and temperature conditions for two special status anadromous salmonids that are found in the Lower American River below Nimbus Dam. Chinook salmon and central valley steelhead both occur seasonally in the river, including in the Nimbus Shoals area of the park just below Nimbus Dam.

Although there are no naturally-occurring *ponds* in the park, numerous small ponds have been constructed at Mississippi Bar – the result of dredge tailing activities over the years. In addition, Avery's Pond, a 2- to 3-acre body of water, was excavated on the northwest shoreline of Folsom Lake in the area of Rattlesnake Bar. These ponds are less than ten feet in depth and support extensive aquatic vegetation growth such as false loosertrife, waterweed, and smartweed. This vegetation provides cover, nesting, and foraging habitat for aquatic fauna. Most animal species associated with the ponds are introduced, including the red-swamp crayfish (*Procambarus clarkii*), sunfish, bass, catfish (*Ictalurus* spp.), bullfrog (*Rana catesbeiana*), and muskrat (*Ondatra zibethicus*). Native species, such as the western pond turtles and waterfowl such as mallards, move from creek systems into the ponds and terrestrial birds and mammals will come to open water areas to drink and feed. Two special status wildlife species are known or likely to occur in the vicinity of the park's pond habitat, including: California red-legged frog and western pond turtle.

Creeks and streams consist of naturally-occurring water courses that are tributaries to Folsom Lake and Lake Natoma. Eight perennial creeks and 22 intermittent/ephemeral streams flow into Folsom Lake. Three additional perennial/intermittent creeks enter Lake Natoma. Perennial creeks contain water throughout the year and support aquatic habitat as well as

sparse to dense cover of aquatic and wetland plant species and stands of riparian woodland habitat. Intermittent streams flow only part of the year and provide zones of seasonally wet habitat providing water, forage, cover and movement corridors for terrestrial and aquatic species. Ephemeral streams do not provide appreciable habitat for aquatic species since they typically dry following the end of each storm event and do not contain seasonal pools.

Native fish species, such as California roach and Sacramento sucker, can survive in the small pools of intermittent streams. Non-native fish, such as sunfish and golden shiner (*Notemigonus crysoleucas*), will move up creeks where they compete with native fish for insects and crustaceans. Species such as the western pond turtle, have adapted to small residual pools during the dry months and can survive without any surface water for some time. Three special status wildlife species are known or likely to occur in the vicinity of the park's creek and stream habitats, including: California red-legged frog, foothill yellow-legged frog (*Rana boylei*), and western pond turtle.

Approximately 0.7 miles of the *Lower American River* below Nimbus Dam lies within the Unit. The Lower American River is designated as Essential Fish Habitat for chinook salmon by the Pacific Fishery Management Council. Adult fall-run chinook salmon enter the Lower American River between August and January, with peak migration occurring October through December and peak spawning occurring in November and early December. Adult steelhead migrate up the Lower American River from January through April. The majority of these fish return to the Nimbus fish hatchery, a mile downstream from Nimbus Dam, after two years in the ocean. Juvenile steelhead spend at least a year rearing in the river before migrating downstream during spring high flows.

In addition to chinook salmon and steelhead, American shad (*Alosa sapidissima*) and Pacific lamprey (*Lampetra tridentata*) migrate up the Lower American River to Nimbus Shoals. Adult striped bass (*Morone saxatilis*), a non-native sport fish, occurs in the Lower American River year-round. Striped bass spawning appears not to occur in the Lower American River.

SPECIAL STATUS PLANT AND ANIMAL SPECIES

A special-status species, as defined here, meets one or more of the following criteria:

- Species that are listed, formally proposed or designated as candidates for listing as threatened or endangered under the Federal Endangered Species Act.
- Species that are listed, or designated as candidates for listing, as rare, threatened, or endangered under the California Endangered Species Act.

- Species that meet the definition of rare, threatened, or endangered under the *California Environmental Quality Act* (CEQA). (Under Section 15380 of the *CEQA Guidelines*, a species not included on any formal list “shall nevertheless be considered to be endangered, rare or threatened if the species can be shown to meet the criteria for listing.”)
- Wildlife species listed by the California Department of Fish and Game (CDFG) as a California Species of Special Concern (CSC), or as fully protected species.
- Listed under one of the following categories in the California Native Plant Society’s (CNPS) Inventory of Rare and Endangered Vascular Plants of California (Skinner and Pavlik 1994) and/or the Electronic Inventory of Rare and Endangered Vascular Plants of California (Skinner and Pavlik 1994; update 2001):
 - List 1A – Plants presumed extinct in California
 - List 1B – Plants rare, threatened, or endangered in California and elsewhere
 - List 2 – Plants rare, threatened, or endangered in California but more common elsewhere.

List 1A, List 1B, and List 2 species may meet the definition of rare and endangered under the California Environmental Quality Act (CEQA) (Sect. 15380); a species not included on any formal list “shall nevertheless be considered rare or endangered if the species can be shown to meet the criteria” for listing. List 3 species are plants for which necessary information is lacking to assign them to any of the other lists, and List 4 species are plants of limited distribution. Therefore, there is usually not enough information available for species on List 3 and List 4 to meet the CEQA definition of rare and endangered plants.

Special Status Plant Species

The habitat types that have the potential to support special status species in the Unit are chaparral, woodland, vernal pool, and freshwater marsh (Figures 5.A and 5.B). Several species are likely to occur in multiple habitat types. Based on a review of prior records, 24 special-status species (including List 3 species) were identified as occurring in the general vicinity of the Unit. There are nine known occurrences of special status plant species within the Unit or in the vicinity of the Unit (less than 1 mile from the Unit boundary). Table 5.A lists all 24 special status plant species and summarizes their preferred habitats.

Special Status Animal Species

Thirty-five special status wildlife species reported from the Folsom area will use habitat types that occur in the Unit (Figures 5.C and 5.D). Table 5.B lists these special status wildlife

species and summarizes their preferred habitat. Four of the species on the list have ranges that do not extend into the Unit. These species are included on the Folsom list because they are included on the special status species list provided by the USFWS (USFWS 2002).

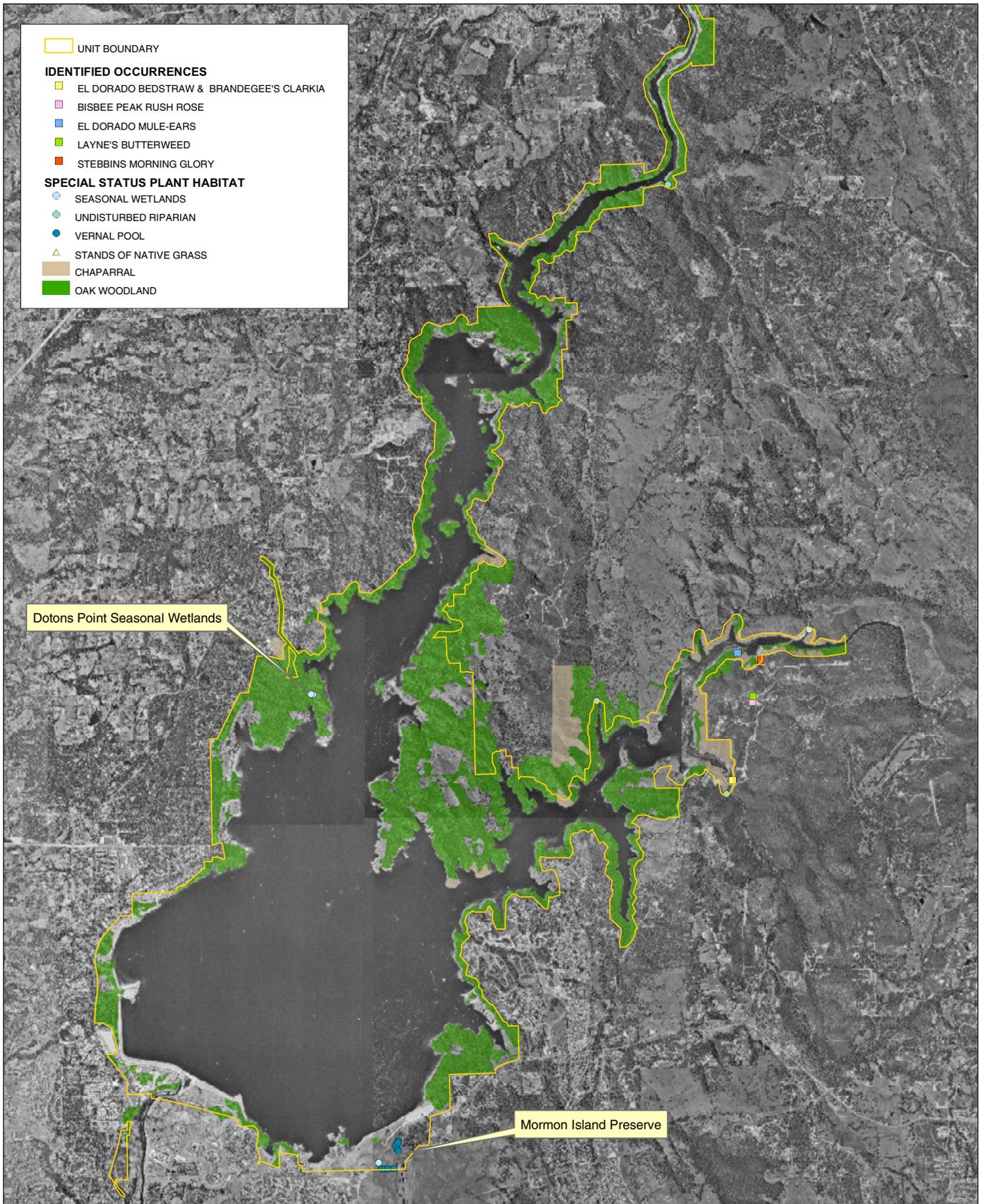
INVASIVE EXOTIC VEGETATION

All of the Unit's plant communities have been significantly influenced by human activities, to varying degrees. For example, most of the Unit's annual grasslands are highly disturbed and bear little resemblance to the native perennial grasslands that they replaced. The introduction of cattle 200 years ago, and the associated introduction of European annual grasses as forage, forever altered the grassland landscape. Grassland in the park is typically dominated by non-native species such as riggut brome, wild oats, yellow starthistle, and mustard.

Many of the riparian habitats in the Unit have been disturbed and/or fragmented by inundation from the reservoir, upstream inputs from run-off, stream perennialization, and road crossings. This fragmentation has probably facilitated infestation by invasive exotic plant species, such as Himalayan berry (*Rubis discolor*) that grows in dense thickets. Such infestations reduce the diversity of native vegetation along the stream corridors and reduce habitat value accordingly.

A number of exotic non-native species are known to occur or were observed during field surveys in the freshwater marsh habitats of the Unit. Pampas grass is a tall (6 – 13 feet) tussock grass that germinates and grows on moist, usually sandy, soils. In the Unit, pampas grass has been observed along the banks of Lake Natoma and bordering many of the dredge tailing ponds along Mississippi Bar. Pampas grass is also known to occur along the lower American River (Bossard, *et al.* 2000).

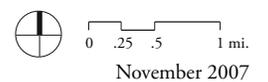
Yellow iris, an introduced species, occurs in dense stands around the shore of Avery's Pond and at Negro Bar near Natoma Crossing. Like pampas grass, it has escaped from gardens. Scarlet wisteria (*Sesbania punicea*) has recently been reported along the American River Parkway although it was not observed in recent field visits. This shrubby legume is a weed of great concern in the eastern portion of the United States and in other countries where it has

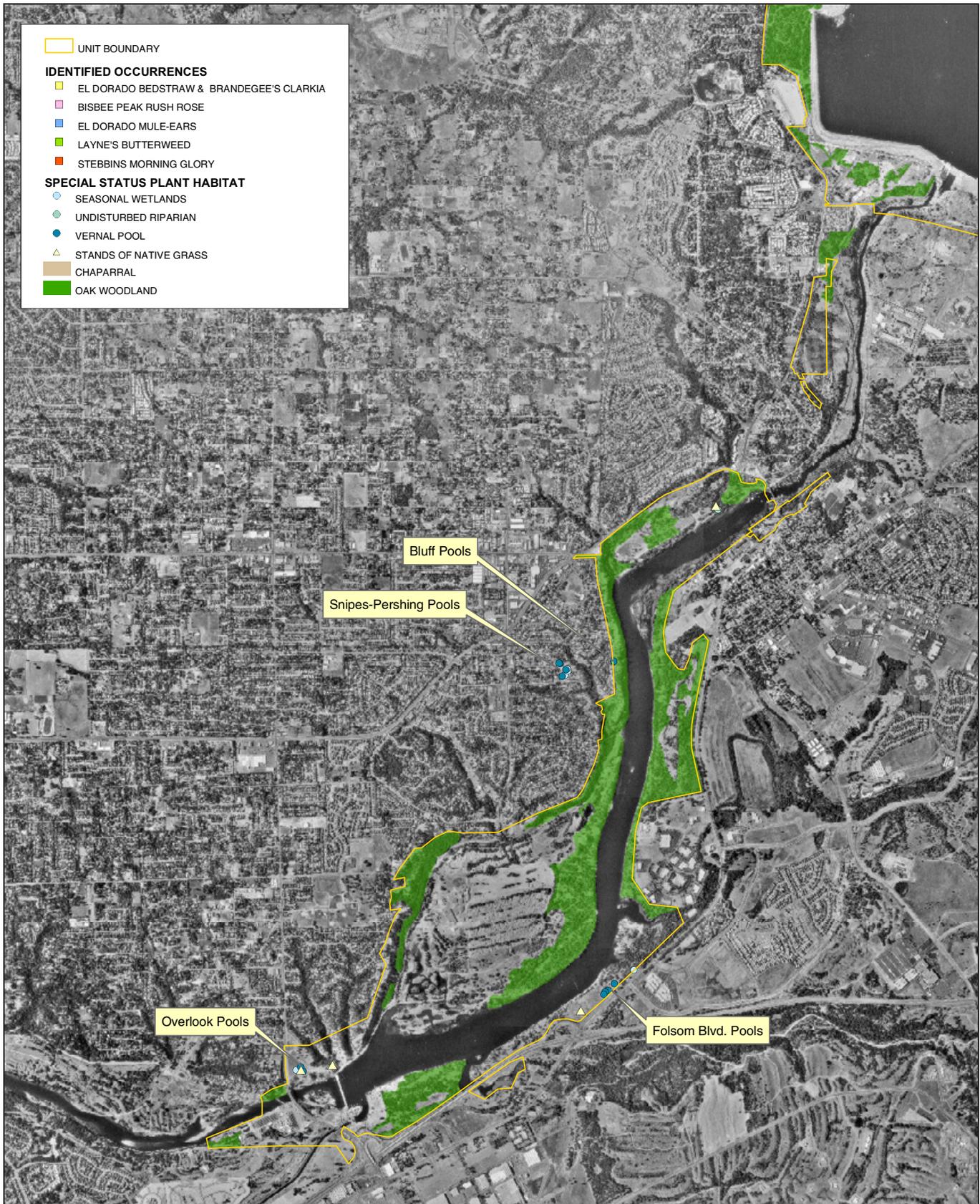


Folsom Lake State Recreation Area & Folsom Powerhouse State Historic Park
 General Plan/Resource Management Plan

Source: LSA Associates, USGS, CDPR

Figure 5.A
FOLSOM LAKE SPECIAL STATUS
PLANT HABITAT AND OCCURENCES

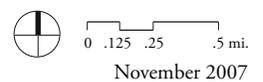


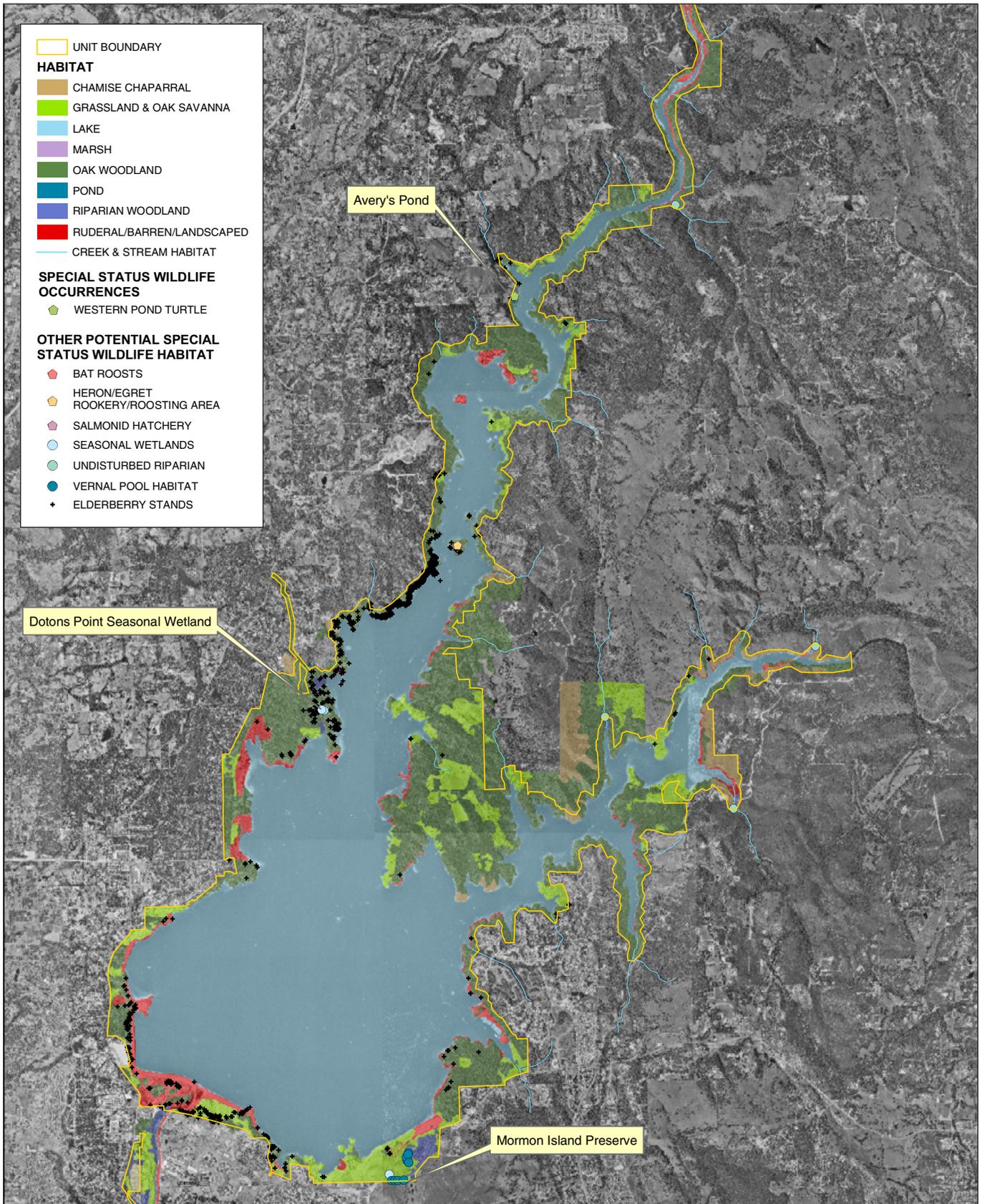


Folsom Lake State Recreation Area & Folsom Powerhouse State Historic Park
General Plan/Resource Management Plan

Source: LSA Associates, USGS, CDPR

Figure 5.B
LAKE NATOMA SPECIAL STATUS
PLANT HABITAT AND OCCURENCES

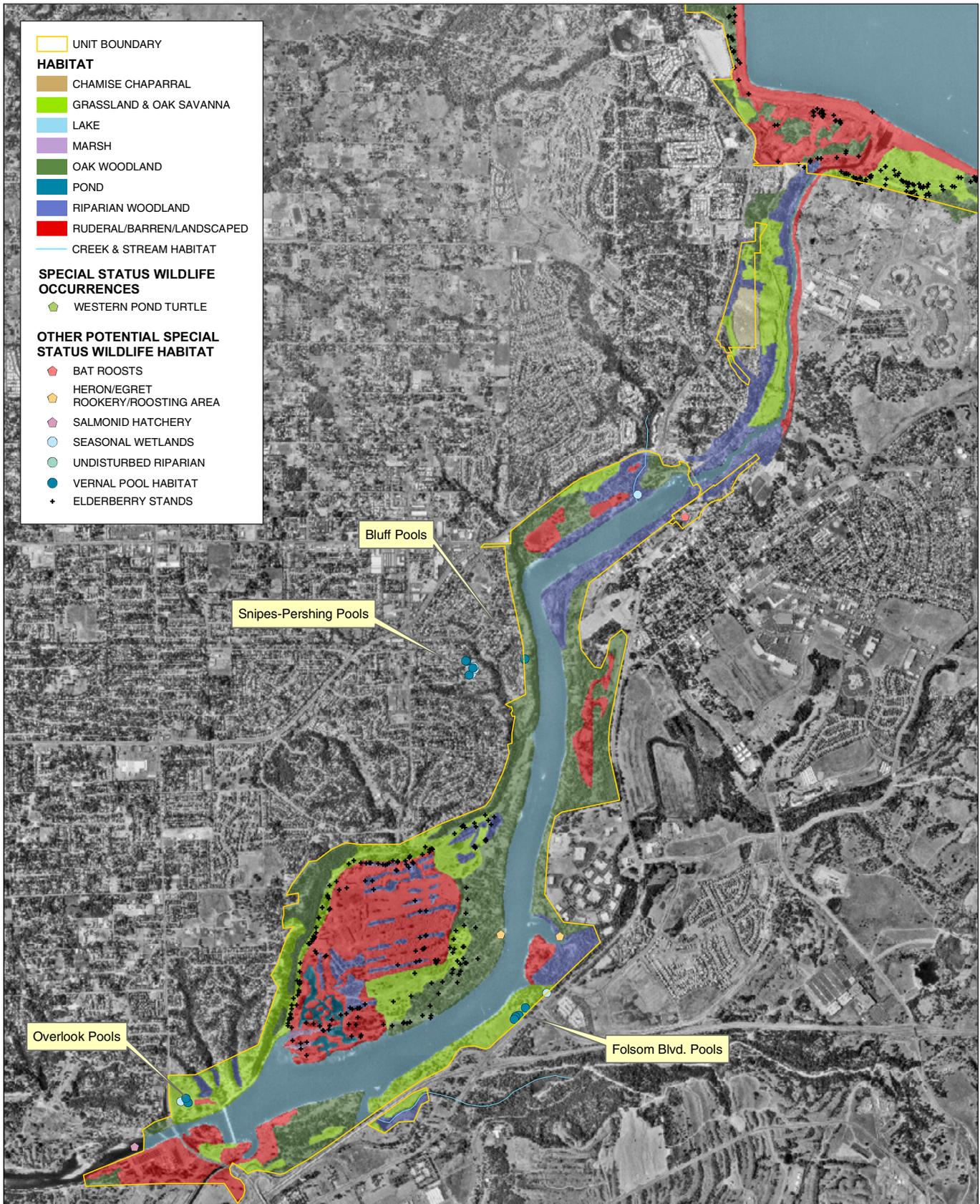




Folsom Lake State Recreation Area & Folsom Powerhouse State Historic Park
General Plan/Resource Management Plan

Source: LSA Associates, Jones & Stokes, USGS, CDPR

Figure 5.C
FOLSOM LAKE WILDLIFE HABITAT AND OCCURENCES



Folsom Lake State Recreation Area & Folsom Powerhouse State Historic Park
General Plan/Resource Management Plan

Source: LSA Associates, Jones & Stokes, USGS, CDPR

Figure 5.D
LAKE NATOMA WILDLIFE HABITAT AND OCCURENCES

Table 5.A: Special-Status Plant Species Occurring in the General Vicinity of the Folsom Lake SRA

Species	Status/Federal/ State/CNPS ¹	Habitat Requirements ²	Blooming Period	Habitat on Folsom SRA	Nearest Known Occurrence ³
<i>Atriplex joaquiniana</i> San Joaquin sparscale	-/-1B	Chenopod scrub, alkali meadow, grassland; in seasonal alkali wetlands or alkali sink scrub.	Apr-Oct	Not present.	No known occurrences in the vicinity.
<i>Balsamorhiza macrolepis</i> var <i>macrolepis</i> Big-scale balsamroot	-/-1B	Grassland, cismontane woodland; sometimes on serpentine.	Mar-Jun	Possible habitat throughout grasslands, woodlands and chaparral the SRA.	Occurs approximately 7 miles from the SRA in the vicinity of Roseville. Historic occurrence at Rattlesnake Bar – now under water.
<i>Calystegia stebbinsii</i> Stebbin's morning glory	FE/SE/1B	Chaparral, cismontane woodland; in open areas on red clay soils of the Pine Hill formation, or on gabbroic or serpentine soils. (Endemic to Pine Hill formation in El Dorado and Nevada counties.)	Apr-Jul	Suitable habitat present in chaparral and woodlands in the Peninsula area.	Just east of Salmon Falls road, approximately 1.7 miles south/southwest of the bridge over the South Fork American River.
<i>Ceanothus roderickii</i> Pine Hill ceanothus	FE/SR/1B	Cismontane woodland, chaparral; on gabbroic soils, often in "historically disturbed" areas. (Endemic to the Pine Hill Area in Eldorado County.)	May-Jun	Suitable habitat present in chaparral and woodlands in the Peninsula area.	Approximately 2.5 miles from the SRA in the vicinity of the landing strip west of Sweetwater Creek.
<i>Chlorogalum grandiflorum</i> Red Hills soaproot	-/-1B	Cismontane woodland, chaparral, lower montane coniferous forest; on serpentine and gabbro substrates; often on "historically disturbed" sites.	May-Jun	Suitable habitat in chaparral and woodlands in the Peninsula area.	Within 1 mile of the SRA in the vicinity of Salmon Falls Road, south of the bridge crossing of the South Fork American River.
<i>Clarkia biloba</i> ssp. <i>brandegeae</i> Brandegee's clarkia	-/-1B	Chaparral, cismontane woodland; often on roadcuts.	May-Jul	Suitable habitat in chaparral and woodlands in the Peninsula area. Possible habitat in woodlands elsewhere in the SRA.	Within or immediately outside SRA boundary in the vicinity of the Salmon Falls Road crossing of Sweetwater Creek.

Table 5.A: Special-Status Plant Species Occurring in the General Vicinity of the Folsom Lake SRA

Species	Status/Federal/ State/CNPS ¹	Habitat Requirements ²	Blooming Period	Habitat on Folsom SRA	Nearest Known Occurrence ³
<i>Cordylanthus mollis</i> ssp. <i>hispidus</i> Hispid bird's-beak	-/-1B	Meadows, playas, grassland; in damp alkaline soils, especially in alkali meadows and sinks.	Jun-Sep	Not present.	Approximately 5 miles from the SRA in the Roseville vicinity.
<i>Downingia pusilla</i> Dwarf downingia	-/-12	Mesic grassland, vernal pools; on margins of different types of vernal pools and vernal lakes.	Mar-May	Relatively undisturbed vernal pool habitats such as those at the Nimbus Overlook Vernal Pool Preserve and the Mormon Island Preserve.	Approximately 8 miles from the SRA within several vernal pool systems in the Roseville vicinity.
<i>Eryngium pinnatisectum</i> Tuolumne button-celery	-/-1B	Cismontane woodland, lower montane coniferous forest, vernal pools; on mesic sites.	Jun-Aug	Possible habitat in woodlands, vernal pool sites, seasonal wetlands.	More than 15 miles to the southeast of Folsom Lake SRA.
<i>Fremontodendron decumbens</i> Pine Hill flannelbush	FE/SR/1B	Chaparral, cismontane woodland; on rocky ridges, often among rocks and boulders. Endemic to gabbroic and serpentine soils. (Endemic to Eldorado and Nevada Counties.)	Apr-Jul	Suitable habitat in chaparral and woodlands in the Peninsula area. Possible habitat in woodlands elsewhere in the SRA.	Approximately 2 miles from the SRA in the vicinity of Deer Valley Road, west of Pine Hill.
<i>Fritillaria eastwoodiae</i> Butte County fritillary	-/-13	Chaparral, cismontane woodland, lower montane coniferous forest; usually on dry slopes in serpentine, red clay, or sandy loam soils; sometimes on mesic sites.	Mar-May	Suitable habitat in chaparral and woodlands in the Peninsula area. Possible habitat in woodlands elsewhere in the SRA.	Approximately 3 miles from the SRA in the vicinity of the confluence of the Middle and North Forks of the American River.
<i>Galium californicum</i> ssp. <i>sierrae</i> El Dorado bedstraw	FE/SR/1B	Cismontane woodland, chaparral, lower montane coniferous forest; on gabbroic soils in mostly oak woodland. (Endemic to El Dorado County.)	May-Jun	Suitable habitat present in chaparral and woodlands in the Peninsula area.	Within or immediately outside SRA boundary in the vicinity of the Salmon Falls Road crossing of Sweetwater Creek.

Table 5.A: Special-Status Plant Species Occurring in the General Vicinity of the Folsom Lake SRA

Species	Status/Federal/ State/CNPS ¹	Habitat Requirements ²	Blooming Period	Habitat on Folsom SRA	Nearest Known Occurrence ³
<i>Gratiola heterosepala</i> Boggs Lake hedge-hyssop	-/SE/1B	Freshwater marshes and swamps, vernal pools; in clay soils, usually in vernal pools, sometimes on lake margins.	Apr-Aug	Relatively undisturbed vernal pool habitats such as those at the Nimbus Overlook Vernal Pool Preserve and the Mormon Island Preserve. Possibly along the margins of perennial creeks such as New York Creek and Willow Creek.	Approximately 3.5 miles from the SRA in vernal pools east of Roseville.
<i>Helianthemum suffrutescens</i> Bisbee Peak rush rose	-/-/3	Chaparral; in openings, often on serpentine, gabbroic, or Ione formation soils.	Apr-Jun	Suitable habitat present in chaparral and woodlands in the Peninsula area.	Near boundary of Folsom Lake SRA – approximately 0.7 miles south of bridge over S. Fork American River.
<i>Juncus leiospermus</i> var. <i>ahartii</i> Ahart's dwarf rush	-/-/1B	Vernal pools; restricted to edges of pools.	Mar-May	Vernal pool and seasonal wetland habitats such as those at the Nimbus Overlook Vernal Pool Preserve, Mormon Island Preserve and Snowberry Vernal Pool Preserve and Snipes-Pershing Park.	Approximately 6 miles from the SRA in the vicinity of Blodgett Reservoir, southeast of Ranch Cordova.
<i>Juncus leiospermus</i> var. <i>leiospermus</i> Red Bluff dwarf rush	-/-/1B	Chaparral, grassland, cismontane woodland, vernal pools; in vernal mesic sites or at edges of vernal pools.	Mar-May	Possible habitat present along vernal pool margins and in other moist locations in natural habitats throughout the SRA.	Approximately 6 miles from the SRA along the margins of vernal pools in the Roseville vicinity.
<i>Lathyrus sulphureus</i> var. <i>argillaceus</i> Dubious pea	-/-/3	Cismontane woodland, lower and upper montane coniferous forest.	Apr	Possible habitat in woodlands.	No known occurrences in the vicinity.

Table 5.A: Special-Status Plant Species Occurring in the General Vicinity of the Folsom Lake SRA

Species	Status/Federal/ State/CNPS ¹	Habitat Requirements ²	Blooming Period	Habitat on Folsom SRA	Nearest Known Occurrence ³
<i>Legenere limosa</i> Legenere	-/-/1B	Vernal pools; in beds of pools. (Many historical occurrences extirpated.)	Apr-Jun	Relatively undisturbed vernal pool habitats such as those at the Nimbus Overlook Vernal Pool Preserve and the Mormon Island Preserve.	Approximately 5 miles from the SRA in the vicinity of Mather AFB.
<i>Navarretia myersii</i> ssp. <i>myersii</i> Pincushion navarretia	-/-/1B	Vernal pools, mesic grassland; on clay soils within non-native grassland.	May	Vernal pool and seasonal wetland habitats such as those at the Nimbus Overlook Vernal Pool Preserve, Mormon Island Preserve and Snowberry Vernal Pool Preserve and Snipes-Pershing Park	Phoenix Vernal Pool Preserve, west of Mississippi Bar area of the SRA.
<i>Orcuttia tenuis</i> Slender Orcutt grass	FT/SE/1B	Vernal pools.	May-Oct	Relatively undisturbed vernal pool habitats such as those at the Nimbus Overlook Vernal Pool Preserve and the Mormon Island Preserve.	Approximately 6 miles from the SRA in the vicinity of Mather AFB.
<i>Orcuttia viscida</i> Sacramento Orcutt grass	FE/SE/1B	Vernal pools. (Endemic to Sacramento County.)	Apr-Jul	Relatively undisturbed vernal pool habitats such as those at the Nimbus Overlook Vernal Pool Preserve and the Mormon Island Preserve.	Phoenix Vernal Pool Preserve, west of Mississippi Bar area of the SRA.
<i>Sagittaria sanfordii</i> Sanford's arrowhead	-/-/1B	Marshes and swamps; in standing or slow-moving, fresh-water ponds and ditches.	May-Oct	Ponds, freshwater marshes and perennial streams throughout Folsom Lake SRA.	Approximately 3.5 miles from the SRA in the Citrus Heights vicinity.

Table 5.A: Special-Status Plant Species Occurring in the General Vicinity of the Folsom Lake SRA

Species	Status/Federal/ State/CNPS ¹	Habitat Requirements ²	Blooming Period	Habitat on Folsom SRA	Nearest Known Occurrence ³
<i>Senecio layneae</i> Layne's ragwort	FT/SR/1B	Chaparral, cismontane woodland; on ultramafic soils; occasionally along streams.	Apr-Jul	Possible suitable habitat in chaparral and woodlands in the Peninsula area. Possible habitat in woodlands elsewhere in the SRA.	Near boundary of Folsom Lake SRA – approximately 0.75 miles south of bridge over S. Fork American River.
<i>Wyethia reticulata</i> El Dorado County mule ears	-/-/1B	Chaparral, cismontane woodland, lower montane coniferous forest; in openings on stony red clay and gabbroic soils. (Endemic to El Dorado County.)	May-Jul	Suitable habitat in chaparral and woodlands in the Peninsula area. Possible habitat in woodlands elsewhere in the SRA.	One known occurrence in the SRA above the South Fork American River, west of Salmon Falls, opposite Indian Springs Creek.

Footnotes:

¹ Status:

FE - Federally-listed as endangered.

FT - Federally-listed as threatened.

SE - State-listed as endangered.

SR - State-listed as rare.

1B - CNPS (California Native Plant Society): Plants rare, threatened or endangered in California and elsewhere.

2 - CNPS: Plants rare, threatened, or endangered in California but more common elsewhere.

3 - CNPS: Plants about which we need more information – a review list.

4 - CNPS: Plants of limited distribution – a watch list.

² Sources: CNPS (2001); CNDDDB (2002); Hickman (1993)³ Source: CNDDDB (2002)

Table 5.B: Special Status Wildlife Species Occurring in the General Vicinity of the Folsom Lake SRA

Species	Status ¹ (Federal/State)	Habitat Notes	Closest Recorded Location ²	Is Suitable Habitat Present on Site?
Invertebrates:				
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	FT/--	Vernal pools and other seasonally ponded features	The Empire Ranch development – immediately S of Mormon Island	Yes; in vernal pools and other seasonal wetlands
Vernal pool tadpole shrimp <i>Lepidurus packardii</i>	FE/--	Vernal pools and other seasonally ponded features	Prairie City Off-Road Vehicle Park – 3 mi. SE of the Unit	Yes, but the Unit is outside presumed range
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	FT/--	Requires elderberry shrubs and trees for all of the life cycle	Elderberry shrubs with evidence of the beetle occur in the Unit	Yes; elderberry bushes with beetle bore holes are located throughout the Unit
Fish:				
Delta smelt <i>Hypomesus transpacificus</i>	FT/ST	Sloughs and slow moving portions of the Sacramento/San Joaquin Delta	No records available from within 15 miles of the Unit	Yes, but the Unit is outside presumed range
Central Valley steelhead ESU ³ <i>Oncorhynchus mykiss irideus</i>	FT/--	Rivers and their tributaries with gravel or cobble substrates for breeding	Just below Nimbus Dam in the Unit	Yes, but range limited to river below Nimbus Dam
Central Valley spring-run Chinook salmon ESU <i>Oncorhynchus tshawytscha</i>	FT/ST	Rivers and their tributaries with gravel or cobble substrates for breeding	Just below Nimbus Dam in the Unit	Yes, but range limited to river below Nimbus Dam
Central Valley fall/late fall-run Chinook salmon <i>Oncorhynchus tshawytscha</i>	--/CSC	Rivers and their tributaries with gravel or cobble substrates for breeding	Just below Nimbus Dam in the Unit	Yes, but range limited to river below Nimbus Dam
Sacramento splittail <i>Pogonichthys macrolepidotus</i>	--/CSC	Rivers and their tributaries with gravel or cobble substrates for breeding	Recent collection from the Hwy 160 bridge over American River – about 10 miles W of the Unit (Historic records for Folsom)	No, but releases of water from the reservoir may impact species habitat downstream

Table 5.B: Special Status Wildlife Species Occurring in the General Vicinity of the Folsom Lake SRA

Species	Status ¹ (Federal/State)	Habitat Notes	Closest Recorded Location ²	Is Suitable Habitat Present on Site?
Amphibians:				
California tiger salamander <i>Ambystoma californiense</i>	FT/--	Rodent burrows in grassland and savanna habitats with seasonal ponds for breeding	Near Twin Cities and Clay Station roads – over 18 miles S of the Unit	Yes, in vernal pools and seasonal wetlands in the Unit, however the Unit is outside the presumed range
Western spadefoot <i>Spea (= Scaphiopus) hammondi</i>	--/CSC	Rodent burrows in grassland and savanna habitat with seasonal ponds for breeding	Vicinity of Grant Line and Douglas roads – 10 miles W of the Unit	Yes; in Unit grasslands with vernal pools and other seasonal wetlands
California red-legged frog <i>Rana aurora draytonii</i>	FT/CSC	Freshwater ponds, creeks, drainages, and seeps	Confluence of Rubicon and American Rivers, also, Spivey Pond on Weber Creek – both over 15 miles NE of the Unit	Yes; in freshwater marshes, ponds, and perennial creeks and intermittent streams in the Unit
Foothill yellow-legged frog <i>Rana boylei</i>	--/CSC	Freshwater creeks and rivers with cobble substrates	Auburn – Approximately 6 miles upstream of the Unit	Yes; upstream American River sections and the Unit's creeks
Reptiles:				
Western pond turtle <i>Emys marmorata</i>	--/CSC	Freshwater lakes, ponds, rivers, creeks, and drainages	Observed in waterbodies in the Unit	Yes; in freshwater marshes, ponds, and creeks and lakes
California horned lizard <i>Phrynosoma coronatum frontale</i>	--/CSC	Chaparral, scrub, sparse grasslands, and coniferous ecotone areas with sandy soils	Pine Hill – 4 miles E; also Pilot Hill area – 3 miles E of the Unit	Yes; openings in the Unit grasslands, chaparral, and woodlands
Giant garter snake <i>Thamnophis couchi gigas</i>	FT/ST	Freshwater marshes, ponds, sloughs, creeks, and drainages	Vicinity of Hwys 16 and 99 intersection – over 15 mile SE of the Unit	Yes; in marshes and ponds in Mississippi Bar and other marsh habitat near Lake Natoma, but the Unit is outside presumed range
Birds:				
Osprey <i>Pandion haliaetus</i> (nesting)	--/CSC	Nests in trees and snags in or in the vicinity of open lakes; reservoirs	No nest records available from within 15 miles of the Unit	Yes; in trees and snags along the Unit's lake shorelines
White-tailed kite	--/FP	Nests in small trees and shrubs	Snipes Pershing Ravine – less	Yes; in trees and shrubs along the Unit's

Table 5.B: Special Status Wildlife Species Occurring in the General Vicinity of the Folsom Lake SRA

Species	Status ¹ (Federal/State)	Habitat Notes	Closest Recorded Location ²	Is Suitable Habitat Present on Site?
<i>Elanus leucurus</i> (nesting)		within and along grasslands	than 1 mile W of the Unit	grasslands
Bald eagle <i>Haliaeetus leucocephalus</i> (nesting and wintering)	--/SE, FP	Large trees in the vicinity of open lakes and reservoirs	Bass Lake – 4 miles SE of the Unit (record does not indicated if nesting or wintering)	Yes; known to winter and roost in large trees and snags along the Unit's lake shorelines (S. Walters <i>pers. com.</i>)
Northern harrier <i>Circus cyaneus</i> (nesting)	--/CSC	Nests on the ground in shrubby vegetation at the edges of marshes or lakes or streams. May also nest in grasslands and prairies	No nest records available from within 15 miles of the Unit	Yes; at the edges of marshes and lakes, and in tall grasslands in the Unit
Sharp-shinned hawk <i>Accipiter striatus</i> (nesting)	--/CSC	Trees in woodlands and savannas	No nest records available from areas within 15 miles of the Unit	Yes; in the Unit's woodlands and savannas where the species is likely to forage in the Unit, but not to nest
Cooper's hawk <i>Accipiter cooperii</i> (nesting)	--/CSC	Trees in dense woodlands and forests	Mississippi Bar in the Unit; Nest observed in riparian vegetation just S of Mormon Island Wetland Preserve – less than 1 mile S of the Unit	Yes; in the Unit's woodlands
Swainson's hawk <i>Buteo swainsoni</i> (nesting)	--/ST	Forages in open grasslands, pastures; nests in tall riparian woodlands	A nest observed along Deer Creek near confluence with Carson Creek 10 miles from the Unit (D. Schmoltdt <i>pers. com.</i>)	Yes; but the Unit is outside presumed range
Ferruginous hawk <i>Buteo regalis</i> (wintering)	--/CSC	During the winter in California, forages in open grasslands, pastures, nests/roosts on low cliffs, shrubs, trees often on lone trees. No breeding records in California.	No nest records available from areas within 15 miles of the Unit	Yes; in grasslands in winter only
Golden eagle <i>Aquila chrysaetos</i> (nesting and wintering)	--/CSC, FP	During the winter in California, forages in open grasslands, pastures; nests/roosts on low cliffs, shrubs, trees often on lone trees. No breeding records in California.	No nest records available from areas within 15 miles of the Unit	Yes; in grasslands in winter only
Merlin	--/CSC	Perches in trees along open habitats	No records available from within	Yes; in open habitat in the Unit

Table 5.B: Special Status Wildlife Species Occurring in the General Vicinity of the Folsom Lake SRA

Species	Status ¹ (Federal/State)	Habitat Notes	Closest Recorded Location ²	Is Suitable Habitat Present on Site?
<i>Falco columbarius</i> (nesting)			15 miles of the Unit	
Peregrine falcon <i>Falco peregrinus anatum</i> (nesting)	--/SE	Nests on cliff ledges	No nest records available from within 15 miles of the Unit	Yes; on rocky ledges in the Unit
Prairie falcon <i>Falco mexicanus</i> (nesting)	--/CSC	Nests on cliff ledges	No nest records available from within 15 miles of the Unit	Yes; on rocky ledges in the Unit
Greater sandhill crane <i>Grus canadensis</i> (nesting and wintering)	--/ST, FP	Winters in Sacramento and San Joaquin valleys where it forages in grasslands, wet meadows, wet croplands, and marsh habitats	Commonly observed during spring/fall migration in the vicinity of Folsom Lake	Yes; primarily flying over the Folsom Lake portion of the Unit
Burrowing owl <i>Athene cucicularia hypugea</i> (burrow sites)	--/CSC, FP	Grassland/pastureland; nest in burrows, especially ground squirrel complexes	Near Keiffer and Grant Line roads – 7 miles south of the Unit	Yes; in grasslands with ground squirrels or other suitable tunnels; presumed extirpated from the Nimbus Flat area over 20 years ago (R. Lee <i>pers. com.</i>)
Short-eared owl <i>Asio otus</i> (nesting)	--/CSC	Tall grass grasslands and prairies	No records available from areas within 15 miles of the Unit	Yes; in grasslands in the Unit
Willow flycatcher <i>Empidonax traillii</i> (nesting)	FE/SE ⁴	Dense riparian habitats at lower elevations in the spring and fall	No records available from areas within 15 miles of the Unit	Yes; in riparian woodland habitat in the Unit
Loggerhead shrike <i>Lanius ludovicianus</i> (nesting)	--/CSC	Nests in small trees and tall shrubs within and along grasslands	No records available from areas within 15 miles of the Unit	Yes; in trees and shrubs along the Unit's grasslands
Purple martin <i>Progne subis</i> (nesting)	--/CSC	Nests in old woodpecker cavities in trees or human made structures such as under bridges	No records available from areas within 15 miles of the Unit	Yes; in the Unit's woodlands and in tall trees near water
Yellow warbler <i>Denroica petechia</i>	--/CSC	Nests and forages in willow thickets and dense riparian brush	No records available from areas within 15 miles of the Unit	Yes; in the Unit's riparian thickets

Table 5.B: Special Status Wildlife Species Occurring in the General Vicinity of the Folsom Lake SRA

Species	Status ¹ (Federal/State)	Habitat Notes	Closest Recorded Location ²	Is Suitable Habitat Present on Site?
(nesting)				
Yellow-breasted chat <i>Icteria virens</i> (nesting)	--/CSC	Nests and forages in willow thickets and dense riparian brush	No records available from areas within 15 miles of the Unit	Yes; in the Unit's riparian thickets
Bell's sage sparrow <i>Amphispiza belli belli</i> (nesting)	--/CSC	Summertime visitor or occasionally rear-round resident in chaparral habitat; breeds in dense chaparral	No records available from areas within 15 miles of the Unit	Yes; in chaparral habitat in the Peninsula area of the Unit
Tricolored blackbird <i>Agelaius tricolor</i> (nesting colonies)	--/CSC	Nests and forages in freshwater marsh and dense brush	Numerous reports from locations all around the Unit except to N and NE. Humbug Creek along Blue Ravine Road – less than 1 miles S of the Unit	Yes; in freshwater marsh and riparian thickets within the Unit
Mammals:				
Pallid bat <i>Antrozous pallidus</i>	--/CSC	Roosts in buildings under bridge; forages over wide variety of habitats	No records available from areas within 15 miles of the Unit	Yes; in building, under bridges, and in tree hollows
Townsend's western big-eared bat <i>Corynorhinus townsendii</i>	--/CSC	Roosts in caves, mines, buildings, other structures; forages over wide range of habitats	No records available from areas within 15 miles of the Unit	Yes; in abandoned buildings and other structures
California mastiff bat <i>Eumops perotis californicus</i>	--/CSC	Roosts in crevices of large outcrops; forages over wide variety of habitats	No records available from areas within 15 miles of the Unit	Yes; in rocky cliffs and outcroppings

Footnotes:

¹ Status:

FE = Federally listed as endangered
FT = Federally listed as threatened.

SE = State-listed as endangered.
ST = State-listed as threatened.
CSC = California species of concern.
FP = California fully protected species

² Unless otherwise indicated, the source for recorded occurrences is the California Natural Diversity Data Base (CNDDDB 2003)

³ Evolutionarily Significant Unit

⁴ The State of California lists all subspecies of willow flycatcher as endangered (*E. traillii brewsteri*, *E. traillii extimus*). Federal listing is only for Southwestern willow flycatcher subspecies (*E. traillii extimus*).

invaded. Giant reed grass is an aggressive invader along riverine systems, and several small patches have been mapped along the upper North Fork Arm in the Unit. State Parks has been treating infestations of arundo along the North Fork of the American River in Auburn SRA, upstream from the project area.

Tree of heaven (*Ailanthus altissima*) is a deciduous thicket forming tree that can be found in many areas along the California coast and Sierra foothills. These areas can be disturbed or non-disturbed and include open fields, urban lots, roadsides, riparian zones. This species is tolerant of many different and extreme soil chemistries and types. Tree of heaven is a prolific root sprouter with root runners sprouting new plants up to 50 feet away from nearest shoot. Short-lived seeds are wind dispersed and spread by water, birds and on farm equipment. Tree of heaven grows in the Negro Bar area.

Seasonal wetlands in the Unit potentially support a number of introduced plants, including pennyroyal (*Mentha pulegium*) and purple loosestrife (*Lythrum hyssopifolium*). Perennial pepperweed (*Lepidium latifolium*) is an invasive exotic pest plant typically associated with disturbed seasonal wetlands. This prolific seeder can spread quickly if not eradicated and can form dense monocultures to the exclusion of nearly all other species. Pepperweed was not observed in any of the seasonal wetlands visited during field surveys of the Unit, however its occurrence is a strong possibility.

NUISANCE WILDLIFE

Animals residing in human use areas often become a nuisance or risk to Unit users. Ground squirrels in the Beal's Point campground and picnic areas regularly multiply in such large numbers that they pose a health risk to campers using this area. The squirrels actively move among people seeking food remnants and handouts. Squirrels that are used to being fed become aggressive and will readily approach people, increasing the potential for people to be bitten or scratched. Squirrels in campgrounds have been known to chew through tents, backpacks and Styrofoam coolers to get to food. Populations of non-migratory resident Canada geese have become established at Lake Natoma. Park visitors feed the geese and the geese can become aggressive. Some of these geese have interbred with domesticated geese which have been abandoned or taken up resident in the park. Goose feces is a problem in the picnic and beach areas at Nimbus Flat. Yellow jackets (*Vespula* sp.) will attempt to forage among the food stuffs of day visitors in picnic areas. Raccoons and skunks become accustomed to the presence of people and can carry rabies. Bears will raid campgrounds and can injure campers.

4.4.5.1.2 Regulatory Considerations

FEDERAL AND CALIFORNIA ENDANGERED SPECIES ACTS

Under the Federal Endangered Species Act (FESA), it is unlawful to “take any species listed as threatened or endangered.” “Take” is defined as to “harass, harm, pursue, hunt, shoot, wound, kill, tap, capture, or collect, or attempt to engage in any such conduct.” An activity is defined as “take” even if it is unintentional or accidental. Take provisions under FESA apply only to listed fish and wildlife species under the jurisdiction of the USFWS and/or the National Oceanic & Atmospheric Administration, National Marine Fisheries Service (NOAA Fisheries). Consultation with USFWS or NOAA Fisheries is required if a project “may affect,” or result in “take” of, a listed species.

When a species is listed, the USFWS and/or NOAA Fisheries, in most cases, must officially designate specific areas as critical habitat for the species. Consultation with USFWS and/or the NOAA Fisheries is required for projects that include a federal action or federal funding if the project will modify designated critical habitat.

Under the California Endangered Species Act (CESA), it is unlawful to “take” any species listed as rare, threatened, or endangered. “Take” means to “hunt, pursue, catch, capture, or kill or attempt to hunt, pursue, catch, capture, or kill.” CESA take provisions apply to fish, wildlife and plant species. Consultation with the CDFG is required if a project will result in “take” of a listed species.

MAGNUSEN-STEVENSON FISHERY CONSERVATION AND MANAGEMENT ACT

Under the Magnusen-Stevens Fishery Conservation and Management Act (MSA), essential fish habitat (EFH) must be designated in every fishery management plan. EFH includes “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” The MSA requires consultation with NOAA Fisheries for projects that include a federal action or federal funding and may adversely modify EFH.

U.S. ARMY CORPS OF ENGINEERS

Under Section 404 of the Clean Water Act (CWA), the Army Corps of Engineers (ACOE) regulates the discharge of dredged or fill material into waters of the U.S. Waters of the U.S. are those waters that have a connection to interstate commerce, either direct or via a tributary system or indirect through a nexus identified in the ACOE regulations. In non-tidal waters, the lateral limit of jurisdiction under Section 404 extends to the ordinary high water mark (OHWM) of a waterbody or, where adjacent wetlands are present, beyond OHWM to the limit of the wetlands. The OHWM is defined as “that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a

clear natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area” (33 CFR 328.3). In tidal waters, the lateral limit of jurisdiction extends to the high tide line or, where adjacent wetlands are present, beyond the high tide line to the limit of the wetlands.

Wetlands are defined as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for a life in saturated soil conditions.” Non-wetland waters essentially include any body of water, not otherwise exempted, that displays an OHWM.

REGIONAL WATER QUALITY CONTROL BOARD

Under Section 401 of the CWA, the State Water Resources Control Board must certify all activities requiring a 404 permit. The Regional Water Quality Control Board (RWQCB) regulates these activities and issues water quality certification for those activities requiring a 404 permit. In addition, the RWQCB has authority to regulate the discharge of “waste” into waters of the State pursuant to the Porter-Cologne Water Quality Control Act.

CALIFORNIA DEPARTMENT OF FISH AND GAME

CDFG, through provisions of Sections 1600-1616 of the State of California Code of Regulations, is empowered to issue agreements for any alteration of a river, stream, or lake where fish or wildlife resources may be substantially adversely affected. Streams (and rivers) are defined by the presence of a channel bed and banks, and at least an ephemeral or intermittent flow of water. CDFG regulates wetland areas only to the extent that those wetlands are part of a river, stream, or lake as defined by CDFG. CDFG generally includes within the jurisdictional limits of streams and lakes, any riparian habitat present. Riparian habitat includes willows, cottonwoods, and other vegetation typically associated with the banks of a stream or lake shoreline.

MIGRATORY BIRD TREATY ACT

The Migratory Bird Treaty Act prohibits actions that will result in the “take” of migratory birds, their eggs, feathers, or nests. “Take,” as defined in the Migratory Bird Treaty Act, is any means or any manner to hunt, pursue, wound, kill, possess, or transport, any migratory bird, nest, egg, or part thereof. Migratory birds are also protected under Section 3513 of the California Fish and Game Code.

CALIFORNIA FISH AND GAME CODE (BREEDING BIRDS)

Section 3503 of the California Fish and Game Code prohibits the take, possession, or needless destruction of the nest or eggs of any bird, except as otherwise provided by the California Fish and Game Code or other regulation.

4.4.5.2 Significance Criteria and Evaluation Methodology

Potential significant impacts associated with biological resources have been evaluated using the following criteria (CEQA Guidelines Sections 15000-15387). The project would have a significant effect on biological resources if it would:

- BIO-a** Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as candidate, sensitive, or special status species in local or regional plans, policies, or regulations by the California Department of Fish and Game or U.S. Fish and Wildlife Service;
- BIO-b** Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;
- BIO-c** Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption or other means;
- BIO-d** Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impeded the use of native wildlife nursery sites;
- BIO-f** Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.

4.4.5.3 Environmental Evaluation and Mitigation Measures

The environmental consequences associated with implementing the project alternatives (Preferred Alternative, Alternative 3, and Alternative 4) and the No Project Alternative are summarized for Biological Resources in Table 5.C. For all alternatives, resource categories and management zones that have an evaluation of “High” effect or “Moderate” effect are

more fully described below to present the level of effect. Where necessary, mitigation measures are present to reduce potential impacts.

4.4.5.2.1 *Guidelines*

The Plan contains specific guidelines (referenced below) to avoid, minimize, or compensate for these impacts:

- Guideline PLANTS-1: Pre-screen potential locations of new construction or site alteration activities based on the potential for special status plants to occur. Unless site specific surveys by a qualified biologist verify that special status plants are unlikely to occur, sites within potential habitat areas should be avoided. If avoidance is not possible, mitigate in accordance with the guidelines of the USFWS and CDFG.
- Guideline WILDLIFE-1: Pre-screen potential locations of new construction or site alteration activities based on the potential for special status wildlife to occur. Unless site specific surveys by a qualified biologist verify that special status wildlife are unlikely to occur, sites within potential habitat areas should be avoided. If avoidance is not possible, mitigate in accordance with the guidelines of the USFWS and CDFG.
- Guideline WILDLIFE-7: Manage lake wildlife corridor zones to optimize their utility for wildlife movement particularly during periods of high lake water levels.
- Guideline CHAPARRAL-1: Prepare and implement project burn plans that describe specific operations and constraints for each burn unit with respect to special status plants and animals.

Table 5.C: BIOLOGICAL RESOURCES IMPACTS EVALUATION

<i>Park-Wide Goals and Guidelines</i>				
Resource	No Project	Preferred Alternative	Alternative A	Alternative B
Invasive Exotic Plant Species	Moderate	Moderate	Moderate	Moderate
Vegetation Management	Moderate	Moderate	Moderate	Moderate
Cultural Resource Management	Low	High	High	High
Wildlife Management	No Impact	No Impact	No Impact	No Impact
Watershed/Water Quality Management	High	No Impact	No Impact	No Impact
Visual Resources	Low	Low	Low	Low
Unitwide Interpretation	High	High	High	High
Visitor Services			see below	
Visitor Capacity			see below	
Park Operations			see below	
<i>Specific Area Goals and Guidelines</i>				
Management Zone	No Project	Preferred Alternative	Alternative A	Alternative B
Nimbus Dam	No Impact	Low	Low	Low
Nimbus Flat/Shoals	Low	Low	Moderate	Low
Lake Overlook	Moderate	Moderate	High	Moderate
Mississippi Bar	Moderate	Moderate	High	Low
Negro Bar	Low	Moderate	High	Moderate
Natoma Canyon	No Impact	Moderate	Moderate	Moderate
Folsom Powerhouse	Moderate	Moderate	Moderate	Moderate
Natoma Shore North	No Impact	Low	High	Low
Natoma Shore South	Moderate	High	High	Low
Lower Lake Natoma (AQ)	No Impact	No Impact	No Impact	No Impact
Upper Lake Natoma (AQ)	No Impact	No Impact	No Impact	No Impact
Folsom Dam	No Impact	Moderate	Moderate	Moderate
Beals Point	No Impact	Moderate	Moderate	Moderate
Mooney Ridge	High	Moderate	Moderate	Moderate
Granite Bay South	???	Moderate	Moderate	Moderate
Granite Bay North	High	Moderate	High	Moderate
Placer Shore	No Impact	Low	Low	Low
Rattlesnake Bar	High	Moderate	High	Moderate
North Fork Shore	Moderate	Moderate	Moderate	Moderate
Anderson Island	No Impact	No Impact	No Impact	No Impact
Peninsula	High	Moderate	High	Moderate
Darrington	No Impact	Low	Low	Low
Skunk Hollow/Salmon Falls	Low	Moderate	Moderate	Moderate
El Dorado Shore	High	High	High	High
Brown's Ravine	Moderate	Moderate	Moderate	Moderate
Mormon Island Cove	Moderate	Moderate	High	Moderate
Mormon Island Preserve	High	High	High	High
Folsom Point	Moderate	Moderate	High	Moderate
Folsom Lake (AQ)	No Impact	No Impact	No Impact	No Impact
Middle North Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Upper North Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Middle South Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Upper South Fork (AQ)	No Impact	No Impact	No Impact	No Impact

- Guideline CHAPARRAL-5: Conduct site assessments to determine if suitable habitat is present for federally listed species. If suitable habitat is found to be present, or if surveys indicate that the species are present, avoid all impacts to the species and their habitats to the maximum extent feasible, consistent with requirements of USFWS, CDFG, and other appropriate agencies.
- Guideline CHAPARRAL-6: Conduct focused special status plant surveys in the Peninsula and South Fork areas in the spring and summer in accordance with USFWS and CNPS guidelines.
- Guideline CHAPARRAL-8: Take into account the potential presence of California horned lizard when planning any proposed park infrastructure improvements in the vicinity of chaparral in the eastern portions of the park. Conduct surveys to locate remaining populations of this species prior to the design of such improvements. Avoid habitat where this species occurs.
- Guideline CHAPARRAL-9: Manage habitat in specific sites where California horned lizard still resides to encourage sparse vegetation.
- Guideline WOODLAND-1: Conduct focused special status plant surveys in woodland areas where improvements may be proposed. Manage oak woodlands in a manner that protects these species.
- Guideline WOODLAND-2: Conduct site assessments to determine if suitable habitat is present for federally listed plant species where improvements are proposed. Conduct protocol-level surveys for these species, where needed. If suitable habitat is found to be present, or if surveys indicate that the species are present, avoid all impacts to species and their habitats to the maximum extent feasible, consistent with requirements of the USFWS, CDFG, and other appropriate agencies.
- Guideline WOODLAND-7: Where existing constraints preclude safe implementation of prescribed burning, design and implement alternative vegetation management strategies.

- Guideline GRASSLAND-1: Apply the same management practices for protecting the California horned lizard as recommended in CHAPARRAL-8 and CHAPARRAL-9.
- Guideline GRASSLAND-2: Prior to considering park facility improvements or other habitat modification in areas that have been identified as potential habitat for burrowing owl, conduct protocol surveys for burrow sites. Conduct surveys for both winter residents and during the breeding season. If evidence of burrowing owls is found, avoid burrow areas to the maximum extent possible. If impacts are unavoidable, mitigate in accordance with the guidelines of the CDFG.
- Guideline GRASSLAND-3: If appropriate as specified in State Parks policy, re-establish burrowing owl colonies by relocation efforts and establishment of artificial burrows in suitable locations.
- Guideline GRASSLAND-4: Prior to considering park facility improvements or other habitat modification in areas that have been identified as potential habitat for loggerhead shrike, conduct surveys to detect active nests during the nesting season. If active nests are found, design improvement plans to avoid these locations until the young have fledged.
- Guideline RUDERAL-2: Refer to the burrowing owl management recommendations described above (GRASSLAND-2 and GRASSLAND-3).
- Guideline RUDERAL-3: Account for the potential presence of roosting bats with any proposed park improvements to existing structures. Conduct surveys to detect roosting locations and to determine whether the site is used as a day, night, or nursery roost. Identify and protect foraging areas. Avoid roosting sites. If day/night nursery roosts are found, design improvement plans to avoid these sites. If impacts are unavoidable, and consistent with State Parks policy on native animal control (and consistent with DOM 0311.5.6.1), alter roosts to discourage use and avoid nursery roosts until young have matured enough to fly

then alter roosts to discourage use. Suitable alternative roosts may be necessary. Consult with CDFG and USFWS as needed or required.

- Guideline VERNAL-1: Maintain the quantity and quality of localized run-off by avoiding placement of fill material, excavations or other surface structure alterations to the vernal pool's watershed areas. Prevent nutrient-laden run-off from adjacent development areas from flowing into the pool systems.
- Guideline VERNAL-2: Establish zones of protection, marked with interpretive and cautionary signage around the park's vernal pool systems. Ideally the zone of protection should include the entire vernal pool system, including the pools themselves, seasonal wetlands, as well as the associated upland area.
- Guideline VERNAL-3: Discourage activities that would cause extensive human intrusion into vernal pools (e.g., trampling of pool side slopes, collection of flowering annuals, litter).
- Guideline VERNAL-7: Avoid park activities that would adversely impact vernal pools. Filling, grading, or excavation work in vernal pools would likely require federal and state wetland permits. Consultation with the USFWS and protocol-level surveys for listed species that occur in vernal pools (e.g., vernal pool fairy shrimp) could also be required. Other activities that could adversely affect these species (e.g., draining), could also trigger the need for USFWS consultation and surveys.
- Guideline VERNAL-8: Conduct surveys for special status plants and animals to learn more about the biological quality of the park's vernal pools.
- Guideline VERNAL-9: Protect vernal pool fairy shrimp and western spadefoot toad habitat by protecting all park vernal pools from direct and indirect impacts as per Guidelines Vernal-1, -2, -3, and -7.
- Guideline VERNAL-10: Provide appropriate access and interpretive signs at vernal pool locations while protecting pool vegetation and structure.

- Guideline RIPARIAN-1: To the degree feasible, avoid park activities that would adversely impact riparian habitat. Such activities would likely require state and federal wetland permits (Section 1602 Streambed Alteration; Sections 401 and 404 Clean Water Act). If impacts are unavoidable, then design and implement mitigation measures to establish new riparian habitat.
- Guideline RIPARIAN-5: To the degree feasible, avoid any park activities that would adversely impact VELB habitat. If such activity is unavoidable, consult with the USFWS as required prior to any disturbance and implement any required conditions or mitigation.
- Guideline RIPARIAN-6: Enact a park-wide management protocol for any future infrastructure, operational, or management plans that could occur in the vicinity of elderberry plants. Include the following tasks in the park-wide management protocol: (1) map sites and count individual elderberry clumps or shrubs, analyze for exit holes if appropriate; (2) protect elderberry stands and associated riparian vegetation with buffer zones of at least 20-25 feet from the edge of driplines; (3) consult with the USFWS as required.
- Guideline RIPARIAN-7: Where VELB habitat has been impacted by human uses restore VELB habitat in selected reaches of streams and lake shorelines in locations where human access is limited and where restoration will not conflict with other management objectives.
- Guideline RIPARIAN-8: Protect potential red-legged frog and foothill yellow-legged frog habitat areas. Take into account the potential presence of these frog species with any proposed park improvements in the vicinity of the park's ponds and various perennial and intermittent creeks. Prior to design of such improvements, conduct surveys for the presence of the species in accordance with USFWS and CDFG protocols. If special status species are present, consult with the USFWS and/or CDFG as

appropriate. If the surveys establish the presence or potential presence of red-legged or yellow-legged frogs, make every effort to avoid impacting the habitat and to establish a buffer zone (usually 300 feet). Conduct habitat mitigation for any unavoidable direct or indirect impacts in accordance with USFWS and CDFG guidelines. Enhance habitat through such measures as bullfrog control and habitat creation in suitable areas of the park.

- Guideline RIPARIAN-10: Protect potential habitat areas for western pond turtle in essentially the same manner as discussed above (RIPARIAN-8). Survey for pond turtle using appropriate and recognized methods.
- Guideline RIPARIAN-11: Place interpretive signs along trails at Mississippi Bar that discuss current and historic habitat for western pond turtle, California red-legged frog, and foothill yellow-legged frog.
- Guideline RIPARIAN-12: Take into account the potential presence of nesting egrets, herons, and/or cormorants with any proposed park improvements or activities in the vicinity of roosting or nesting sites. Survey and map known or potential rookery sites, including surveys of active rookeries during future nesting seasons. If active rookeries are found, design improvement plans to avoid these sites until the young have fledged. Conduct any construction work in the vicinity outside of the breeding season. Consider establishing exclusion zones around the potential rookery sites for watercraft and other active recreational uses during the nesting season.
- Guideline RIPARIAN-13: Protect active or potential rookery sites from disturbance during the nesting season.
- Guideline RIPARIAN-15: Survey for yellow-breasted chat and yellow warbler nesting activity in areas proposed for Himalayan blackberry management. Do not conduct management work until the

nesting season is completed, all young have been fledged, and the nests have been abandoned.

Guideline RIPARIAN-16: In areas of potential yellow-breasted chat and yellow warbler nesting habitat (dense riparian vegetation), conduct surveys to determine the presence of active nests. Avoid park construction or restoration work in the vicinity of nesting sites during nesting season. If active nests are found, improvement plans should be scheduled to avoid these locations until after the breeding season.

Guideline MARSH/POND-1: Place interpretive signs at pond and marsh areas of the park, as appropriate, to describe current and historic habitat for aquatic species and habitat restoration efforts.

Guideline MARSH/POND-4: Avoid activities that would adversely impact freshwater marshes to the fullest extent feasible. Obtain and comply with all required State and federal permits (Sections 401 and 404 of the Clean Water Act and DFG Streambed Alteration Permits).

Guideline MARSH/POND-5: Avoid construction work in the vicinity of nesting sites during the nesting season. Conduct surveys to detect active nests during the nesting season. If active nests are found, design and schedule improvement activities to avoid these locations until the young have fledged.

Guideline SHORELINE-1: As appropriate and feasible, restore the utility of the lake shoreline corridor zones for wildlife by improving the vegetative cover. Plant willows and cottonwoods at or slightly below the 466 foot level to provide additional vegetative cover.

Guideline WATER-1: Protect watersheds and streams within the park by avoiding adverse impacts to streambank and bed morphology, floodplain features and riparian vegetation.

- Guideline WATER-2: Ensure that park operations, facilities and uses avoid or minimize impacts to water quality.
- Guideline SUSTAIN-1: *Sustainable Sites*: Minimize the negative environmental impacts associated with site enhancement, development, maintenance, and operations activities by considering the following guidelines when implementing the Plan:
- Reuse or rehabilitate previously disturbed or developed sites, and, to the degree feasible, avoid developing greenfield sites or sites that contain sensitive species, habitats, or wetlands.
 - Facilitate access to public transportation in order to provide an alternative to the private automobile.
 - Minimize impact during construction. Prepare and implement site sedimentation and erosion control plans. Limit heavy equipment access.
 - Emphasize utilizing existing native vegetation in the planning, design and construction of new facilities. Preserve and protect existing native vegetation during construction.
 - Limit the area of parking, paving, and lawns to the minimum that will actually be used.
 - Design new plantings as diverse communities of species well-adapted to the site. Use primarily native species that require less maintenance and less water than exotics. Reserve exotics for accents. Avoid use of any plant that is invasive. Use plants that attract desirable wildlife.
 - Employ integrated pest management (IPM) against weeds, insects and other pests, with biological controls (e.g., parasitic insects, pheromone traps, natural pesticides, and companion-planting) as the first line of defense.
 - Use mulching, alternative mowing, and composting to maintain plant health. Organic mulch around plantings conserves water and maintains favorable soil temperatures.

- Use animal-proof waste and food storage systems to prevent impacts to wildlife.

4.4.5.2.2 *Impacts*

Impact BIO-1: The execution of a prescribed burn program and development of recreational, interpretive and administrative facilities that would result from Plan implementation could potentially impact sensitive and special status species either directly or through habitat modification (Significance Criteria BIO-a).

The execution of a prescribed burn program and development of additional recreational, interpretive, and administrative facilities associated with Plan implementation could adversely impact habitat that supports sensitive and special status species or the species themselves. Chaparral, oak woodland, riparian, seasonal wetlands and vernal pools, grassland/oak savanna, creek and stream, pond, and marsh habitat located in the park all have the potential to support special status plant and/or wildlife species. In addition, buildings and other structures may provide habitat for two species of bats that are California Species of Special Concern.

Mitigation Measure BIO-1: If one or more special status species are determined to be present, the burn plan shall include provisions for ensuring that burns are conducted in a manner that maintains and promotes habitat for these species.

Impact BIO-2: The development of recreational, interpretive and administrative facilities that would result from Plan implementation could potentially have a substantial adverse effect on riparian habitat, wetland habitat (e.g., marsh, vernal pool, coastal, etc.), and other sensitive natural communities in the park (Significance Criteria BIO-b and BIO-c).

The development of additional recreational, interpretive, and administration facilities associated with Plan implementation could adversely impact sensitive and under-protected vegetation communities in the park include chaparral, oak woodlands and savanna, vernal pools and other wetland habitats, and riparian areas.

Mitigation Measure BIO-2: Prior to implementation, State Parks/Reclamation shall obtain the necessary permits/authorizations from the U.S. Army Corps of Engineers, California Regional Water Quality Control Board and CDFG. State Parks/Reclamation and contractor shall adhere to all permit conditions to ensure that impacts are minimized.

Impact BIO-3: The development of recreational, interpretive and administrative facilities that would result from Plan implementation could potentially interfere with the movement of native wildlife species or migratory fish through established wildlife corridors (Figures 5.E and 5.F) (Significance Criteria BIO-d).

The Folsom Lake shoreline zone is an important wildlife corridor within the Unit when water levels recede, allowing for wildlife to move about and disperse between patches of habitat that would otherwise be isolated from one another when water levels are high (usually late-winter until mid-late-spring). Along the western, southern, and southeastern sides of the lake, shoreline movement corridors interconnect several oak woodland, grassland and riparian woodland habitats that are separated from one another by residential subdivisions.

Specific impacts related to the development of new facilities associated with Plan implementation are described below.

PARK-WIDE GOALS AND GUIDELINES

Invasive Exotic Plant Species

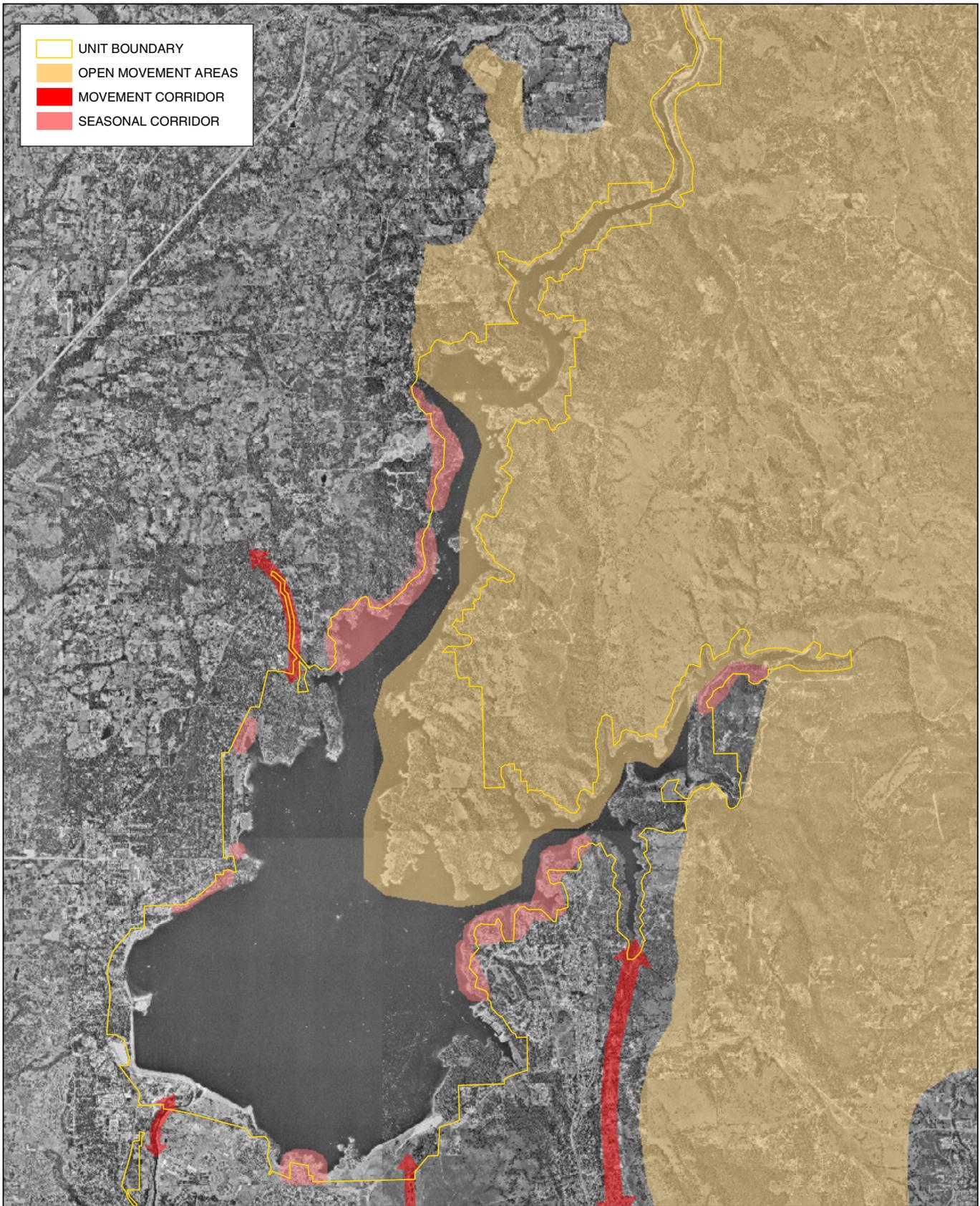
All Alternatives: Moderate Impact

Removal of invasive Himalayan blackberry (*Rubus discolor*) in riparian areas has the potential to impact yellow-breasted chat and yellow warbler nests. Both birds are California Species of Special Concern. Implementation of guidelines Riparian-15 and Riparian-16 will reduce the impacts to a level below significance. In addition, prescribed burns have the potential to impact special status plant species (see Tables 5.A and 5.B for special status species listings). Implementation of guidelines SUSTAIN-1, CHAPARRAL-1, CHAPARRAL-5, WOODLAND-1 and -2, WOODLAND-7, and Mitigation Measure BIO-1, described above, will reduce the impacts to a level below significance. The No Action/No Project Alternative would not implement the guidelines developed for the Plan.

Vegetation Management

All Alternatives: Moderate Impact

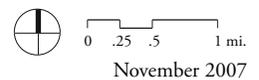
See Invasive Exotic Plant Species above.

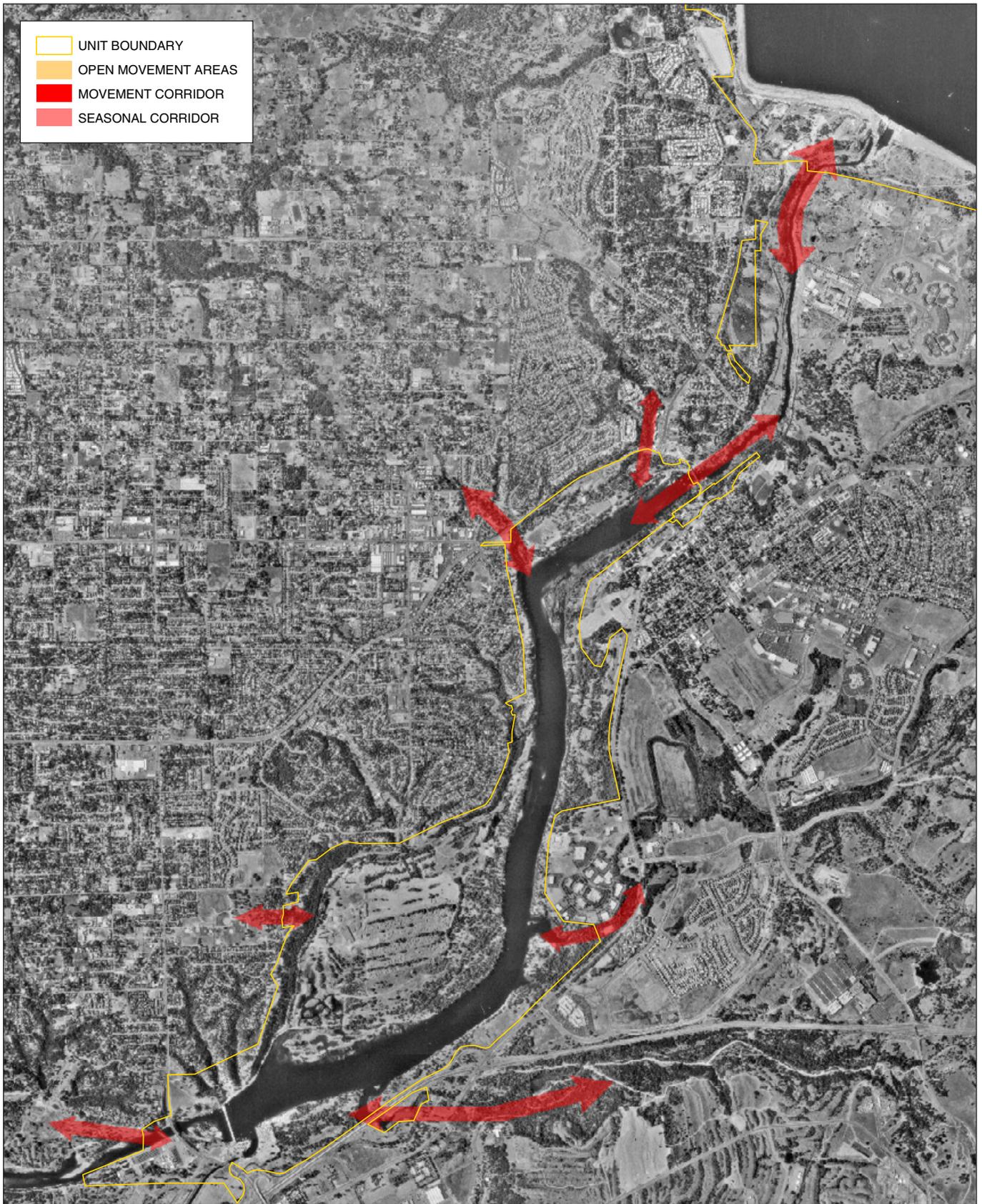


Folsom Lake State Recreation Area & Folsom Powerhouse State Historic Park
 General Plan/Resource Management Plan

Source: LSA Associates, Jones & Stokes, USGS, CDPR

Figure 5.E
FOLSOM LAKE MOVEMENT CORRIDORS





Folsom Lake State Recreation Area & Folsom Powerhouse State Historic Park
 General Plan/Resource Management Plan

Source: LSA Associates, Jones & Stokes, USGS, CDPR

Figure 5.F
LAKE NATOMA MOVEMENT CORRIDORS

Cultural Resource Management

Preferred Alternative, Alternative 3 and Alternative 4: High Impact

Implementation of these alternatives would result in the additional development of interpretive facilities, such as the State Indian Museum and the Negro Bar Cultural Center at various locations within the park. Biological impacts related to development of these facilities are addressed by management zone in the Specific Area Goals and Guidelines section below.

Watershed/Water Quality Management

No Project: High Impact

Depending upon its placement within the Unit, installation of sewage treatment/disposal facilities for maintaining water quality has the potential to affect sensitive natural communities within the park, impact special status species and/or the habitats that support them, or interfere with the movement of native wildlife species.

Unitwide Interpretation

All Alternatives: High Impact

Implementation of these alternatives would result in the additional development of interpretive facilities, such as the Folsom Powerhouse Visitor Center, improvements to the existing American River Water Education Center, a general park visitor/information center, a State Indian Museum, and the Negro Bar Cultural Center at various locations within the park. Biological impacts related to development of these facilities are addressed by management zone in the Specific Area Goals and Guidelines section below. The No Action/No Project Alternative would not implement the guidelines developed for the Plan.

SPECIFIC AREA GOALS AND GUIDELINES

Nimbus Flat/Shoals

Preferred Alternative: Moderate Impact

Depending upon its placement, the development of a multi-use facility, including flexible classroom and event space, kitchen facilities, storage, administrative area, exhibit area, and other visitor services facilities as directed by the Preferred Alternative has the potential to adversely affect oak woodland, grassland/oak savanna, and ruderal habitat and/or the special status plant and wildlife species associated with these vegetation types. Burrowing owls (*Athene cunicularia hypugea*, CSC) and loggerhead shrikes (*Lanius ludovicianus*, CSC) have the potential to occur in grassland and ruderal habitat. Due to the current level of recreation facilities and use

in this zone, this impact is considered moderate. Implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, WOODLAND-1 and -2, GRASSLAND-2 through GRASSLAND-4, and Mitigation Measure BIO-2, described above, will reduce the impacts to a level below significance.

Alternative 3: Moderate Impact

Depending upon their placement, the development of an artificial whitewater course channel, construction of spectator facilities, and provision of a paved parking area on the gravel bar as directed by Alternative 3 has the potential to adversely affect oak woodland, grassland/oak savanna, and ruderal habitat and/or the special status plant and wildlife species associated with these vegetation types. Development of an artificial whitewater course may require dredging/fill of wetlands and result in the loss of wetland habitat. Temporary impacts associated with construction of the whitewater course could also include increased erosion and increased potential for weed/invasive species infestation. Burrowing owls (*Athene cunicularia hypugea*, CSC) and loggerhead shrikes (*Lanius ludovicianus*, CSC) have the potential to occur in grassland and ruderal habitat. Due to the current level of recreation facilities and use in this zone, this impact is considered moderate. Implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, RIPARIAN-1, WATER-1 and -2, WOODLAND-1 and -2, GRASSLAND-2 through GRASSLAND-4, and Mitigation Measure BIO-2, described above, will reduce the impacts to a level below significance.

Lake Overlook

No Project: Moderate Impact

Depending upon their placement, the relocation of the steep multi-use trail, addition of ten picnic sites and restroom facilities, and relocation of the security fencing downslope have the potential to adversely affect grassland/oak savanna and riparian habitat and/or the special status plant and wildlife species associated with these vegetation types. Grassland/oak savanna vegetation in this management zone potentially supports native grass stands, burrowing owls (CSC), loggerhead shrikes (CSC), and the California horned lizard (CSC). Riparian vegetation in the canyons potentially supports yellow-breasted chats (CSC) and yellow warblers (CSC), and elderberry shrubs (*Sambucus mexicanus*), which provide habitat for the federally threatened (FT) valley elderberry longhorn beetle (VELB). Riparian habitat in this zone also has the potential to support the western pond turtle (CSC), California red-legged frog (CSC/FT) and foothill yellow-legged frog (CSC).

Preferred Alternative and Alternative 4: Moderate Impact

Implementation of the preferred alternative would result in the additional development of day-use facilities, including picnic area, interpretive displays, and shade armadas. Depending upon their placement, these additional recreational and interpretive facilities have the potential to adversely affect grassland/oak savanna and riparian habitat and/or the special status plant and wildlife species associated with these vegetation types. Refer to the No Project above for specific impacts. Due to the limited extent of ground disturbance, this impact is considered moderate.

Implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, RIPARIAN-1, RIPARIAN-5 through RIPARIAN-8, RIPARIAN-10, RIPARIAN-15, WATER-1 and -2, WOODLAND-1 and -2, and GRASSLAND-1 through GRASSLAND-4 will reduce the impacts to a level below significance. No mitigation measures are necessary.

Alternative 3: High Impact

Construction of the small amphitheater, additional paved parking, and restroom facilities associated with implementation of Alternative 3, has the potential to adversely affect grassland/oak savanna and riparian habitat and/or the special status plant and wildlife species associated with these vegetation types. Refer to the No Project alternative above for specific impacts. Due to the increase in the amount of ground disturbance from the other alternatives and the change in management designation from Conservation to Recreation-Medium, this impact is considered high. Implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, RIPARIAN-1, RIPARIAN-5 through RIPARIAN-8, RIPARIAN-10, RIPARIAN-15, WATER-1 and -2, WOODLAND-1 and -2, and GRASSLAND-1 through GRASSLAND-4 will reduce the impacts to a level below significance. No mitigation measures are necessary.

Mississippi Bar*No Project: Moderate Impact*

Expansion of development at Mississippi Bar to include 100 picnic sites has the potential to affect, depending upon their placement, oak woodland, grassland/oak savanna, pond, and riparian habitat and/or the special status plant and wildlife species associated with these vegetation types. This alternative may also potentially eliminate elderberry stands that provide habitat for the federally threatened VELB and impact a wading bird roosting area and rookery located along the shore.

Grassland/oak savanna vegetation in this management zone may provide habitat for the burrowing owl (CSC) and loggerhead shrike (CSC). Riparian vegetation may

provide habitat for yellow-breasted chats (CSC), yellow warblers (CSC), western pond turtles (CSC), California red-legged frogs (CSC/FT) and foothill yellow-legged frogs (CSC). Tricolored blackbirds (CSC) are associated with pond and marsh habitat. However, as this area has previously been disturbed due to historic mining activities, and picnic sites are not likely to be situated in sensitive areas, this impact is considered moderate.

Preferred Alternative: Moderate Impact

Expansion of development at Mississippi Bar to include picnic areas, vehicle access, parking, toilets and drinking water, and additional paddling channels in areas impacted by aggregate mining would require ground-disturbing activities that could result in impacts to oak woodland, grassland/oak savanna, pond, and riparian habitat and/or the special status plant and wildlife species associated with these vegetation types. This alternative may also potentially eliminate elderberry stands that provide habitat for the federally threatened VELB and impact a wading bird roosting area and rookery located along the shore. Additional impacts to special status species occurring in these vegetation types are included in the No Project alternative above. As this area has previously been disturbed due to historic mining activities, and additional facilities are not likely to be located in sensitive areas, this impact is considered moderate. Implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, RIPARIAN-1, RIPARIAN-5 through RIPARIAN-8, RIPARIAN-10 through RIPARIAN-13, RIPARIAN-15, WATER-1 and -2, WOODLAND-1 and -2, MARSH/POND-4 and -5, and GRASSLAND-1 through GRASSLAND-4 will reduce the impacts to a level below significance. No mitigation measures are necessary.

Alternative 3: High Impact

The expansion of the Shadow Glen concession could potentially eliminate elderberry stands that provide habitat for the federally threatened valley elderberry longhorn beetle. Depending upon their site placement and project size, the additional development of recreational facilities, including a visitor/nature center, paddling facility/boathouse and associated dock or ramp, additional lagoon, group campground, and food concession could potentially adversely affect oak woodland, grassland/oak savanna, pond, and riparian habitat and/or the special status plant and wildlife species associated with these vegetation types. This alternative may also potentially eliminate elderberry stands that provide habitat for the federally threatened VELB and impact a wading bird roosting area and rookery located along

the shore. Additional impacts to special status species occurring in these vegetation types are included in the No Project alternative above.

The proposed boardwalk trail at Snipes-Pershing Ravine vernal pool and formalized trailhead has the potential to affect the sensitive species that are endemic to vernal pool habitat. Although this management zone has been developed with the Shadow Glen concession, warm water lagoons for paddling and swimming, and bicycle trail and has also been previously disturbed due to historic mining activities, a significant increase in the level of development is proposed under Alternative 3. This increase would be considered a potentially significant biological impact. Implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, RIPARIAN-1, RIPARIAN-5 through RIPARIAN-8, RIPARIAN-10 through RIPARIAN-13, RIPARIAN-15, WATER-1 and -2, WOODLAND-1 and -2, MARSH/POND-4 and -5, VERNAL-1 through VERNAL-3, VERNAL-7 through VERNAL-9, and GRASSLAND-1 through GRASSLAND-4 will reduce the impacts to a level below significance. No mitigation measures are necessary.

Negro Bar

Preferred Alternative and Alternative 4: Moderate Impact

Implementation of the Preferred Alternative and Alternative 4 would result in development of the Negro Bar Cultural Center and expansion of interpretive facilities, which, depending upon site placement, could result in impacts to oak woodland, grassland/oak savanna, seasonal wetland, and riparian habitat and/or the special status plant and wildlife species associated with these vegetation types. Grassland and ruderal areas in this management zone may provide habitat for the California horned lizard (CSC), burrowing owl (CSC), and loggerhead shrike (CSC). Riparian vegetation may provide habitat for yellow-breasted chats (CSC), yellow warblers (CSC), western pond turtles (CSC), California red-legged frogs (CSC/FT) and foothill yellow-legged frogs (CSC). There are native grass stands associated with the seasonal wetland habitat identified in this zone. This alternative may also potentially eliminate elderberry stands that provide habitat for the federally threatened VELB. The provision of an additional low dock for hand launching could result in increased erosion, potential loss of wetland habitat and increased potential for weed/invasive species invasion. As this area has already been developed with day use facilities, this impact is considered moderate. Implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, RIPARIAN-1, RIPARIAN-5 through RIPARIAN-8, RIPARIAN-10 through RIPARIAN-13, RIPARIAN-15, WATER-1 and -2, WOODLAND-1 and -2, and GRASSLAND-1 through

GRASSLAND-4 and Mitigation Measure BIO-1, described above, will reduce the impacts to a level below significance.

Alternative 3: High Impact

Expansion of the group camping area, day use beach area, and existing boat ramp; and the development of a paddling facility/boathouse have the potential to affect oak woodland, grassland/oak savanna, seasonal wetland, and riparian habitat and/or the special status plant and wildlife species associated with these vegetation types.

Additional impacts to special status species occurring in these vegetation types are included in the Preferred Alternative/Alternative 4 above. As the additional facilities included in this alternative involve a change in designation from Recreation-Medium to Recreation-High, this impact is considered high. Implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, RIPARIAN-1, RIPARIAN-5 through RIPARIAN -8, RIPARIAN -10, RIPARIAN -15, WATER-1 and -2, WOODLAND-1 and -2, VERNAL-1 through VERNAL-3, VERNAL-7 through VERNAL-9, and GRASSLAND-1 through GRASSLAND-4 will reduce the impacts to a level below significance. No mitigation measures are necessary.

Natoma Canyon

Preferred Alternative, Alternative 3, and Alternative 4: Moderate Impact

Depending upon placement, the addition of a Class I bike path along Powerhouse Canal to the prison property has the potential to adversely impact riparian habitat and/or the special status plant and wildlife species associated with this vegetation type. Riparian vegetation may provide habitat for yellow-breasted chats (CSC), yellow warblers (CSC), western pond turtles (CSC), California red-legged frogs (CSC/FT) and foothill yellow-legged frogs (CSC). This alternative may also potentially eliminate elderberry stands that provide habitat for the federally threatened VELB. The group picnic area planned in the area of the Olive Grove, as proposed under the Preferred Alternative and Alternative 3, has the potential to impact oak woodland, grassland/oak savanna, and riparian habitat and/or the special status plant and wildlife species associated with these vegetation types habitats. Grassland areas in this management zone may provide habitat for the burrowing owl (CSC), and loggerhead shrike (CSC). Implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, RIPARIAN-1, RIPARIAN-5 through RIPARIAN-8, RIPARIAN-10, RIPARIAN-15, WATER-1 and -2, WOODLAND-1 and -2, and GRASSLAND-2 through GRASSLAND-4 will reduce the impacts to a level below significance. No mitigation measures are necessary.

Folsom Powerhouse*No Project: Moderate Impact*

The addition of 80 parking spaces, depending upon their placement, has the potential to adversely affect riparian habitat and/or the special status plant and wildlife species associated with this vegetation type. Riparian vegetation may provide habitat for yellow-breasted chats (CSC), yellow warblers (CSC), western pond turtles (CSC), California red-legged frogs (CSC/FT) and foothill yellow-legged frogs (CSC). This alternative may also potentially eliminate elderberry stands that provide habitat for the federally threatened VELB. An additional boat dock could result in increased erosion, potential loss of wetland habitat and increased potential for weed/invasive species invasion. Due to the developed nature of this site, this impact is considered moderate.

Preferred Alternative, Alternative 3 and Alternative 4: Moderate Impact

Depending upon their placement, the development of a visitor center, paddling put-in, and expansion of the parking area has the potential to adversely affect riparian habitat and/or the special status plant and wildlife species associated with this vegetation type. The dock associated with the paddling put-in could result in increased erosion, potential loss of wetland habitat and increased potential for weed/invasive species invasion. Special status species potentially affected by these improvements are discussed in the No Project alternative above. The restoration of Powerhouse structures has the potential to impact the pallid bat (*Antrozous pallidus*, CSC) and Townsend's western big-eared bat (*Corynorhinus townsendii*, CSC), which are both species that roost in buildings. Implementation of guidelines SUSTAIN-1, PLANTS-1, WIDLIFE-1, RIPARIAN-1, RIPARIAN-5 through RIPARIAN-8, RIPARIAN-10, RIPARIAN-15, WATER-1 and -2, and RUDERAL-3 and Mitigation Measure BIO-2, described above, will reduce the impacts to a level below significance.

Natoma Shore North*Alternative 3: High Impact*

Depending upon their location, the conversion of informal trail corridors to formal trails has the potential to adversely impact oak woodland and riparian habitat and/or the special status plant and wildlife species associated with these vegetation types. Ruderal habitat occurring in this management zone has the potential to support burrowing owls (CSC) and loggerhead shrikes (CSC). Riparian vegetation may provide habitat for yellow-breasted chats (CSC), yellow warblers (CSC), western pond turtles (CSC), California red-legged frogs (CSC/FT) and foothill yellow-legged

frogs (CSC). There is also a heron/egret rookery located along the shore that may be affected when informal trails are converted to formal trails because increased visitor use has the potential to disrupt this site. Because this site is mostly natural with little previous disturbance and unauthorized trails were created without consideration of sensitive species/habitat, this alternative is considered high. Implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, RIPARIAN-1, RIPARIAN-5 through RIPARIAN-8, RIPARIAN-10, RIPARIAN-12 and -13, RIPARIAN-15, WATER-1 and -2, GRASSLAND-2 through GRASSLAND-4, and WOODLAND-1 and -2 will reduce the impacts to a level below significance. No mitigation measures are necessary.

Natoma Shore South

No Project: Moderate Impact

An increase in the number of picnic sites at Willow Creek has the potential to impact riparian habitat and/or the special status plant and wildlife species associated with this vegetation type. Riparian vegetation may provide habitat for yellow-breasted chats (CSC), yellow warblers (CSC), western pond turtles (CSC), California red-legged frogs (CSC/FT) and foothill yellow-legged frogs (CSC). This alternative may also potentially eliminate elderberry stands that provide habitat for the federally threatened VELB and impact the heron/egret rookery located in close proximity because increased visitor use has the potential to disrupt this site. Because there is already a day-use/picnic area established, its expansion to include seven more sites is considered a moderate impact.

Preferred Alternative: High Impact

Development of the State Indian Museum has the potential to adversely affect grassland/oak savanna, vernal pool, and seasonal wetland habitat and/or the special status species associated with these vegetation types. Grassland/oak savanna vegetation may provide habitat for the California horned lizard (CSC), burrowing owl (CSC), and loggerhead shrike (CSC). Because this management zone is primarily natural and undeveloped, the placement of the State Indian Museum is considered a high impact. However, the management directive for the implementation of the museum states that “it will be sized, sited and constructed to minimize impacts to natural resources...and locate[d] to avoid and minimize impacts on native blue oak trees.” Improvement of the Willow Creek day-use facilities has the potential to impact riparian habitat as described above in the No Project alternative. In addition to the protection measures written in to the museum directive, implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, RIPARIAN-1, RIPARIAN-5

through RIPARIAN-8, RIPARIAN-10, RIPARIAN-12 and -13, RIPARIAN-15, VERNAL-1 through VERNAL-3, VERNAL-7 through VERNAL-9, WOODLAND-1 and -2, WATER-1 and -2, and GRASSLAND-1 through GRASSLAND-4 will reduce the impacts to a level below significance. No mitigation measures are necessary.

Alternative 3: High Impact

In addition to the development of the State Indian Museum and expansion of the picnic area at Willow Creek, this alternative proposes to pave and expand the boat ramp and picnic facilities at Willow Creek, and enhance public access at Alder Creek Pond. Potential impacts to riparian habitat due to the expansion and increased visitor use are described above. Increased public access to Alder Creek Pond has the potential to adversely affect riparian habitat and sensitive species associated with it (as described above), and also tricolored blackbirds (CSC), which are associated with freshwater marsh/pond habitat. Implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, RIPARIAN-1, RIPARIAN-5 through RIPARIAN-8, RIPARIAN-10, RIPARIAN-12 and -13, RIPARIAN -15, WATER-1 and -2, MARSH/POND-1, and MARSH/POND-4 and -5 will reduce the impacts to a level below significance. No mitigation measures are necessary.

Folsom Dam

Preferred Alternative, Alternative 3, and Alternative 4: Moderate Impact

Depending upon their sizes and/or location, the addition of a Class I bike path, and consolidation and construction of administrative facilities to include a park visitor center and American River Water Education Center (ARWEC) has the potential to impact grassland/oak savanna and/or the special status plant and wildlife species associated with this vegetation type. Ruderal and grassland habitat occurring in this management zone has the potential to support California horned lizards (CSC), burrowing owls (CSC), and loggerhead shrikes (CSC). This alternative may also potentially eliminate elderberry stands that provide habitat for the federally threatened VELB. In addition, the consolidation of Park Headquarters and associated structures has the potential to impact the pallid bat (CSC) and Townsend's western big-eared bat (CSC), which are both species that roost in buildings and barren habitat. As this area has already been developed with administrative facilities, this impact is considered moderate. Implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, WOODLAND-1 and -2, RUDERAL-3, RIPARIAN-5 through RIPARIAN-7, and GRASSLAND-1 through

GRASSLAND-4 will reduce the impacts to a level below significance. No mitigation measures are necessary.

Beal's Point

Preferred Alternative and Alternative 4: Moderate Impact

Depending upon its placement, the proposed bike path may impact elderberry stands which provide habitat for the federally threatened VELB, and oak woodland and grassland/oak savanna habitat and/or the special status plant and wildlife species associated with these vegetation types. Grassland and ruderal habitat occurring in this management zone has the potential to support burrowing owls (CSC) and loggerhead shrikes (CSC). The reconfiguration of camping and day-use facilities as proposed by the Preferred Alternative may adversely impact elderberry stands which provide habitat for the federally threatened VELB. Burrowing owls (CSC), loggerhead shrikes (CSC), and pallid and Townsend's western big-eared bats (both CSC), may also be impacted as they may inhabit ruderal and/or barren areas. The State Parks boat dock proposed under both alternatives has the potential to result in increased erosion, potential loss of wetland habitat and increased potential for weed/invasive species invasion. As this area has already been significantly developed and is heavily visited, this impact is considered moderate. Implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, WOODLAND-1 and -2, RUDERAL-3, RIPARIAN-5 through RIPARIAN-7, and GRASSLAND-2 through GRASSLAND-4 and Mitigation Measure BIO-2, described above, will reduce the impacts to a level below significance.

Alternative 3: Moderate Impact

The reconfiguration of the campground area and expansion of the boat ramp has the potential to impact ruderal habitat and the special status species that may be associated with it. See Preferred Alternative/Alternative 4 above for additional information on impacts. Elderberry stands, which provide habitat for the federally threatened VELB, may also be impacted. Depending upon its placement and size, the addition of a group picnic area may impact elderberry stands which provide habitat for the federally threatened VELB, and oak woodland and grassland/oak savanna habitat and/or the special status plant and wildlife species associated with these vegetation types. See above. As this area has already been significantly developed and is heavily visited, this impact is considered moderate. Implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, WOODLAND-1 and -2, RUDERAL-3, RIPARIAN-5 through RIPARIAN-7, and GRASSLAND-2 through

GRASSLAND-4 will reduce the impacts to a level below significance. No mitigation measures are necessary.

Mooney Ridge

No Project: High Impact

Implementation of the no project alternative would result in the development of a 200-slip marina with snack bar, boating equipment rental, ferry terminal, 250 parking spaces, operations dock/office, and restrooms. Currently, Mooney Ridge is largely undeveloped (trail access only); a significant increase in the level of development is proposed under the No Action Alternative. Expansion of recreational facilities would potentially impact oak woodland and grassland/oak savanna habitat and/or the special status plant and wildlife species associated with these vegetation types. Grassland and ruderal habitat occurring in this management zone has the potential to support burrowing owls (CSC) and loggerhead shrikes (CSC). This alternative may also potentially eliminate elderberry stands that provide habitat for the federally threatened VELB. In addition, the heavy development concentrated along the shoreline has the potential to impact a seasonal shoreline wildlife corridor. The development of aquatic recreation facilities, including a 200-slip marina with snack bar and ferry terminal, may require dredging and/or fill of wetlands and loss of wetland habitat. Temporary impacts related to construction of such facilities could include increased erosion and increased potential for weed/invasive species invasion. Because a significant increase in the visitation in this largely undeveloped management zone is likely to occur as a result of the no project alternative, the impact is considered high.

Preferred Alternative, Alternative 3, and Alternative 4: Moderate Impact

Depending upon its placement within the management zone, a Class I bike path has the potential to impact elderberry stands and the federally threatened VELB, the seasonal shoreline wildlife corridor, and oak woodland and grassland/oak savanna habitat and/or the special status plant and wildlife species associated with these vegetation types. See No Project alternative above for additional information on impacts related to these habitat types. Implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, WOODLAND-1 and -2, RIPARIAN-5 through RIPARIAN-7, GRASSLAND-2 through GRASSLAND-4, WIDLIFE-7, and SHORELINE-1 will reduce the impacts to a level below significance. No mitigation measures are necessary.

Granite Bay South

Preferred Alternative, Alternative 3, and Alternative 4: Moderate Impact

Reconfiguration of the vehicle entrance, boat launch complex, and main beach parking area; expansion of the Activity Center; and development of additional facilities including lifeguard tower, dry dock storage facility, and group picnic area (Alternative 3) would likely have minimal effects on native vegetation and/or sensitive species due to the fact that these areas are significantly developed and experience high use. However, depending upon their sizes and placement, these recreational improvements still have the potential to impact oak woodland and grassland/oak savanna and/or the special status plant and wildlife species associated with these vegetation types. Grassland and ruderal habitat occurring in this management zone has the potential to support burrowing owls (CSC) and loggerhead shrikes (CSC). Expansion of the Activity Center has the potential to impact the pallid bat (CSC) and Townsend's western big-eared bat (CSC), which are both species that roost in buildings and ruderal/barren areas. Finally, additional improvements concentrated along the shoreline have the potential to impact a seasonal shoreline wildlife corridor. The addition of floating boarding docks at the boat launch complex and the State Parks boat dock proposed under these alternatives have the potential to result in increased erosion, loss of wetland habitat and increased potential for weed/invasive species invasion. Because this management zone is the busiest in the Unit and includes the widest range of facilities, the impact associated with these management directives is considered moderate. Implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, WOODLAND-1 and -2, GRASSLAND-2 through GRASSLAND-4, RUDERL-3, WILDLIFE-7, and SHORELINE-1 and Mitigation Measure BIO-2, described above, will reduce the impacts to a level below significance.

Granite Bay North

No Project: High Impact

Depending upon their placement in the management zone, the addition of 250 parking spaces, paved roads, and picnic stoves in the Oak Point/Dotons area has the potential to adversely affect oak woodland, seasonal wetland, vernal pool, and riparian habitat and/or the special status plant and wildlife species associated with these vegetation types. Riparian vegetation may provide habitat for yellow-breasted chats (CSC), yellow warblers (CSC), western pond turtles (CSC), California red-legged frogs (CSC/FT) and foothill yellow-legged frogs (CSC). This alternative may also potentially eliminate elderberry stands that provide habitat for the federally threatened VELB and impact wading bird roosting areas and rookeries. Ruderal

vegetation located in this area has the potential to impact burrowing owl (CSC) habitat. The suggested paved access below high water has the potential to impact a seasonal shoreline wildlife corridor and result in increased erosion, loss of wetland habitat and increased potential for weed/invasive species invasion. Because this area is relatively undeveloped and remote, the impact is high.

Preferred Alternative and Alternative 4: Moderate Impact

Depending upon their placement, the designation of new trails, construction of staff housing, and provision of low water access and parking (Preferred Alternative) has the potential to adversely affect oak woodland, chaparral, seasonal wetland, vernal pool, shoreline, ruderal, and riparian habitat and/or the special status plant and wildlife species associated with these vegetation types. See No Project alternative above for additional information on impacts related to these habitat types. Chaparral vegetation may provide habitat for the California horned lizard (CSC). This alternative may also potentially eliminate elderberry stands that provide habitat for the federally threatened VELB and impact wading bird roosting areas and rookeries. Although low water access and parking in limited designated locations will impact a potential shoreline wildlife corridor, designated parking will serve to prevent some parking in undesignated locations, thereby protecting biological resources. Implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, VERNAL-1 through VERNAL-3, VERNAL-7 through VERNAL-9, RIPARIAN-1, RIPARIAN-5 through RIPARIAN-8, RIPARIAN-10, RIPARIAN-12 and -13, RIPARIAN-15, WATER-1 and -2, WOODLAND-1 and -2, CHAPARRAL-5, CHAPARRAL-8 and -9, RUDERAL-2, WILDLIFE-7, and SHORELINE-1 will reduce the impacts to a level below significance. No mitigation measures are necessary.

Alternative 3: High Impact

Depending upon their placement, the addition of a formal beach at Oak Point with parking for approximately 100 vehicles, formalized picnic facilities (including a group picnic area), and the expansion of the equestrian staging area have the potential to impact elderberry shrubs and the VELB; wading bird roosting areas and rookeries; and oak woodland, chaparral, seasonal wetland, vernal pool, shoreline, ruderal, and riparian habitat and/or the special status plant and wildlife species associated with these vegetation types. See No Project, Preferred Alternative, and Alternative 4 above for additional information on impacts related to these habitat types. This management zone remains largely undeveloped. The impact associated with this alternative is high due to the significant increase in the level of development proposed under Alternative 3 and the change in use designation from Conservation

to Recreation-Medium. Implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, VERNAL-1 through VERNAL-3, VERNAL-7 through VERNAL-9, RIPARIAN-1, RIPARIAN-5 through RIPARIAN-8, RIPARIAN-10, RIPARIAN-12 and -13, RIPARIAN-15, WATER-1 and -2, WOODLAND-1 and -2, CHAPARRAL-5, CHAPARRAL-8 and -9, RUDERAL-2, WILDLIFE-7, and SHORELINE-1 will reduce the impacts to a level below significance. No mitigation measures are necessary.

Rattlesnake Bar

No Project: High Impact

Implementation of the No Project alternative would result in the addition of 100 picnic tables, a trail camp, staff residence, and floating restroom; and an upgraded equestrian staging area to include water, picnic tables, paved parking, watering troughs, and hitching posts. Depending upon the placement of the new facilities, this alternative has the potential to adversely impact oak woodland, riparian, freshwater marsh/pond, and grassland/oak savanna habitat and/or the special status plant and wildlife species associated with these vegetation types. Riparian vegetation may provide habitat for yellow-breasted chats (CSC), yellow warblers (CSC), western pond turtles (CSC), California red-legged frogs (CSC/FT) and foothill yellow-legged frogs (CSC). This alternative may also potentially eliminate elderberry stands that provide habitat for the federally threatened VELB and impact wading bird roosting areas and rookeries. Grassland and ruderal vegetation located in this area has the potential to support burrowing owl (CSC) and loggerhead shrike (CSC) habitat, and tricolored blackbirds (CSC) are associated with freshwater marsh/pond habitat. Although this area is moderately developed, the level of additional development proposed by the No Project is significant.

Preferred Alternative and Alternative 4: Moderate Impact

Implementation of the preferred alternative would result in additional development of recreation and administrative facilities including picnic facilities, shade armadas, vault toilets, additional low water access and parking, potential boat ramp extension, interpretive trail to Avery's Pond, and a staff residence. Depending upon the placement of the new facilities, this alternative has the potential to adversely impact oak woodland, riparian, freshwater marsh/pond, and grassland/oak savanna habitat and/or the special status plant and wildlife species associated with these vegetation types. See the No Project alternative above for additional information on impacts related to these habitat types. This alternative may also potentially eliminate elderberry stands that provide habitat for the federally threatened VELB and impact

wading bird roosting areas and rookeries. Proposed low water access and parking and the extension of the boat ramp into Folsom Lake has the potential to result in increased erosion, loss of wetland habitat and increased potential for weed/invasive species invasion. Implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, GRASSLAND-2 through GRASSLAND-4, RIPARIAN-1, RIPARIAN-5 through RIPARIAN-8, RIPARIAN-10, RIPARIAN-12 and -13, RIPARIAN-15, WATER-1 and -2, WOODLAND-1 and -2, MARSH/POND-1, MARSH/POND-4 and -5, and Mitigation Measure BIO-2, described above, will reduce the impacts to a level below significance.

Alternative 3: High Impact

Additional recreational improvements suggested by Alternative 3 include parking facilities, the paving of the access road to the western portion of the management zone, individual and group picnic sites with shade ramadas, trailhead facilities, an expansion of the equestrian staging area (refer to No Project alternative), and a widening and extension of the boat ramp. Depending upon the placement of the new facilities, this alternative has the potential to adversely impact elderberry stands and wading bird roosting areas and rookeries; and oak woodland, riparian, freshwater marsh/pond, and grassland/oak savanna habitat and/or the special status plant and wildlife species associated with these vegetation types. See the No Project alternative above for additional information on impacts related to these habitat types. The extension of the boat ramp into Folsom Lake has the potential to result in increased erosion, loss of wetland habitat and increased potential for weed/invasive species invasion. Although this area is moderately developed, the level of additional development proposed by Alternative 3 is significant. Implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, GRASSLAND-2 through GRASSLAND-4, RIPARIAN-1, RIPARIAN-5 through RIPARIAN-8, RIPARIAN-10, RIPARIAN-12 and -13, RIPARIAN-15, WATER-1 and -2, WOODLAND-1 and -2, MARSH/POND-1, MARSH/POND-4 and -5, and Mitigation Measure BIO-2, described above, will reduce the impacts to a level below significance.

North Fork Shore

No Project: Moderate Impact

The No Project alternative proposes the addition of a car-top launch and small parking area at Old Rattlesnake Road, and the conversion of existing day-use boat-in sites to boat-in campsites and the addition 30 new day-use boat-in sites and a boarding float. The development of these additional aquatic recreation facilities has the potential to impact wading bird roosting areas and rookeries along the shoreline

and oak woodland habitat and the special status plant and wildlife species associated with this vegetation type. The development of these additional aquatic recreation facilities could also result in increased erosion, loss of wetland habitat and increased potential for weed/invasive species invasion.

Preferred Alternative and Alternative 4: Moderate Impact

The construction of the North Fork Trail bridge, accommodation of the Auburn to Cool Trail bridge, and placement of a new trail to connect either of these bridges to the Peninsula management zone have the potential to adversely impact oak woodland, grassland/oak savanna, chaparral, riparian, and seasonal wetland habitat and/or the special status plant and wildlife species associated with these vegetation types. The eastern shore of this management zone is currently undeveloped and the proposed trail will cover miles of varied habitat. Grassland and ruderal vegetation located in this zone has the potential to support California horned lizard (CSC), burrowing owl (CSC) and loggerhead shrike (CSC) habitat. Riparian vegetation may provide habitat for yellow-breasted chats (CSC), yellow warblers (CSC), western pond turtles (CSC), California red-legged frogs (CSC/FT) and foothill yellow-legged frogs (CSC). This alternative may also potentially eliminate elderberry stands that provide habitat for the federally threatened VELB. Bridge construction could require the placement of piers or similar support structures within the streambed and has the potential to result in increased erosion, loss of wetland habitat, and increased potential of weed/invasive species invasion. Implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, WOODLAND-1 and -2, CHAPARRAL-5 through CHAPARRAL-7, GRASSLAND-1 through GRASSLAND-4, RIPARIAN-1, RIPARIAN-5 through RIPARIAN-8, RIPARIAN-10, RIPARIAN-15, WATER-1 and -2, and Mitigation Measure BIO-2, described above, will reduce the impacts to a level below significance.

Alternative 3: Moderate Impact

In addition to the recreational guidelines proposed in the Preferred Alternative, Alternative 3 proposes the development of a boat-in campground at Wild Goose Flat. Refer to the No Project Alternative for impacts. Implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, WOODLAND-1 and -2, RIPARIAN-1, RIPARIAN-12 and -13, and WATER-1 and -2 will reduce the impacts to a level below significance. No mitigation measures are necessary.

Peninsula

No Project: High Impact

Depending upon their placement, the addition of 200 picnic sites and beach at Pumphouse Point, a loop trail, trail staging area and trail camp has the potential to affect oak woodland, grassland/oak savanna, chaparral, and riparian habitat and/or the special status plant and wildlife species associated with these vegetation types. Grassland vegetation located in this zone has the potential to support California horned lizard (CSC), burrowing owl (CSC) and loggerhead shrike (CSC) habitat. Riparian vegetation may provide habitat for yellow-breasted chats (CSC), yellow warblers (CSC), western pond turtles (CSC), California red-legged frogs (CSC/FT) and foothill yellow-legged frogs (CSC). This alternative may also potentially eliminate elderberry stands that provide habitat for the federally threatened VELB and impact wading bird roosting areas and rookeries along the shoreline. Although this area is moderately developed, the level of additional development proposed by the No Project is significant.

Preferred Alternative and Alternative 4: Moderate Impact

The expansion of the Peninsula campground to accommodate 50 additional sites has the potential to adversely affect oak woodland and grassland/oak savanna habitat and/or the special status plant and wildlife species associated with these vegetation types. See No Project alternative above for impacts to sensitive species. Depending upon where they are, the conversion of abandoned roadways for trail use has the potential to adversely affect oak woodland, chaparral, riparian, and grassland/oak savanna habitat and/or the special status plant and wildlife species associated with these vegetation types. See No Project alternative above for impacts to sensitive species. This alternative may also potentially eliminate elderberry stands that provide habitat for the federally threatened VELB and impact wading bird roosting areas and rookeries along the shoreline. However, because these portions of this management zone have already been developed with campground and associated day-use facilities, this impact is considered moderate. Implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, GRASSLAND-1 through GRASSLAND-4, CHAPARRAL-5 through CHAPARRAL-9, RIPARIAN-1, RIPARIAN-5 through RIPARIAN-8, RIPARIAN-10, RIPARIAN-12 and -13, RIPARIAN-15, WATER-1 and -2, and WOODLAND-1 and -2 will reduce the impacts to a level below significance. No mitigation measures are necessary.

Alternative 3: High Impact

The additional development of 100-200 campsites and marina has the potential to

adversely affect oak woodland, riparian, and grassland/oak savanna habitat and/or the special status plant and wildlife species associated with these vegetation types. See No Project alternative above for impacts to sensitive species. This alternative may also potentially eliminate elderberry stands that provide habitat for the federally threatened VELB and impact wading bird roosting areas and rookeries along the shoreline. The development of a marina may require dredging and/or fill of wetlands and loss of wetland habitat. Temporary impacts related to construction of such facilities could include increased erosion and increased potential for weed/invasive species invasion. Although this area has already been developed with campground and day-use facilities, the level of development proposed under Alternative 3 is considered a potentially significant biological impact. Implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, GRASSLAND-1 through GRASSLAND-4, RIPARIAN-1, RIPARIAN-5 through RIPARIAN-8, RIPARIAN-10, RIPARIAN-12 and -13, RIPARIAN-15, WATER-1 and -2, and WOODLAND-1 and -2 and Mitigation Measure BIO-2, described above, will reduce the impacts to a level below significance.

Skunk Hollow/Salmon Falls

Preferred Alternative, Alternative 3, and Alternative 4: Moderate Impact

Depending upon its placement, the creation of a new trail corridor from Skunk Hollow to a potential BLM trail along the north shoreline has the potential to adversely impact chaparral, riparian, and seasonal wetland habitat and/or the special status plant and wildlife species associated with these vegetation types. Chaparral vegetation located in this zone has the potential to support California horned lizard (CSC) and burrowing owl (CSC) habitat. Riparian vegetation may provide habitat for yellow-breasted chats (CSC), yellow warblers (CSC), western pond turtles (CSC), California red-legged frogs (CSC/FT) and foothill yellow-legged frogs (CSC). Implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, WOODLAND-2 and -2, CHAPARRAL-5 through CHAPARRAL-9, GRASSLAND-1 through GRASSLAND-3, RIPARIAN-1, RIPARIAN-8, RIPARIAN-10, RIPARIAN-15, and WATER-1 and -2 will reduce the impacts to a level below significance. No mitigation measures are necessary.

El Dorado Shore

No Project: High Impact

The addition of parking facilities and toilets at Sweetwater Creek has the potential to adversely impact chaparral and undisturbed riparian habitat and/or the special status plant and wildlife species associated with these vegetation types. Chaparral and

grassland vegetation located in this zone has the potential to support California horned lizard (CSC), burrowing owl (CSC), and loggerhead shrike (CSC) habitat. Riparian vegetation may provide habitat for yellow-breasted chats (CSC), yellow warblers (CSC), western pond turtles (CSC), California red-legged frogs (CSC/FT) and foothill yellow-legged frogs (CSC). In addition, El Dorado bedstraw (*Galium californicum* ssp. *sierrae*), which is federally endangered (FE) and State listed as rare (SR), and Brandegee's Clarkia (*Clarkia biloba* ssp. *brandegeae*), which is a CNPS List 1B species, have both been identified in the chaparral habitat in close proximity to Sweetwater Creek's confluence with the South Fork of the American River. The development of 80 campsites, an RV sanitary station, boat dock, boat camping, and swim beach with restrooms and trail staging area in the vicinity of New York Creek/Monte Vista has the potential to significantly affect oak woodland, grassland/oak savanna, and riparian habitat and/or the special status plant and wildlife species associated with these vegetation types (see above). This alternative may also potentially eliminate elderberry stands that provide habitat for the federally threatened VELB. The level of development proposed under the No Action Alternative would be considered a potentially significant biological impact.

Preferred Alternative and Alternative 4: High Impact

The provision of parking and formalization of the trail that connects Old Salmon Falls and Sweetwater Creek has the potential to adversely impact chaparral, oak woodland, and undisturbed riparian habitat and/or the special status plant and wildlife species associated with these vegetation types. Refer to the No Impact alternative above for special status species potentially impacted in the Sweetwater Creek area. A formalized parking area located at the Falcon Crest trailhead has the potential to impact oak woodland and/or the special status plant and wildlife species associated with this vegetation type. Although the level of development proposed under these alternatives is low, the potential impacts to known special status plant species and undisturbed riparian habitat makes this a potentially significant biological impact. Implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, CHAPARRAL-5 through CHAPARRAL-9, GRASSLAND-1 through GRASSLAND-4, RIPARIAN-1, RIPARIAN-5 through RIPARIAN-8, RIPARIAN-10, RIPARIAN-15, WATER-1 and -2, and WOODLAND-1 and -2 will reduce the impacts to a level below significance. No mitigation measures are necessary.

Alternative 3: High Impact

The development of paved formalized parking areas at Sweetwater Creek and Falcon Crest, a major trailhead and staging facility at Falcon Crest, and day use facilities in

the vicinity of the former Monte Vista campground has the potential to adversely impact chaparral, oak woodland, and undisturbed riparian habitat and/or the special status plant and wildlife species associated with these vegetation types. Refer to the No Impact and Preferred alternatives above for special status species potentially impacted in these areas. Additionally, the development of a site along the lakeshore for hand launching car top boats has the potential to impact ruderal and grassland/oak savanna vegetation that potentially supports California horned lizard (CSC), burrowing owl (CSC), and loggerhead shrike (CSC) habitat. The level of development proposed under Alternative 3 would be considered a potentially significant biological impact. Implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, CHAPARRAL-5 through CHAPARRAL-9, GRASSLAND-1 through GRASSLAND-4, RIPARIAN-1, RIPARIAN-5 through RIPARIAN-8, RIPARIAN-10, RIPARIAN-15, WATER-1 and -2, and WOODLAND-1 and -2 will reduce the impacts to a level below significance. No mitigation measures are necessary.

Brown's Ravine

No Project: Moderate Impact

Implementation of this alternative would result in development of additional facilities to include dry boat storage and repair building, 100 boat slips, and an office/storage building for lake patrol. Because these recreational improvements are associated with the marina facilities already existing on site, they will most likely be placed in areas that are already highly developed and experience high use. However, these suggested recreational and administrative facilities improvements have the potential to impact a seasonal shoreline wildlife corridor. This alternative may also potentially eliminate elderberry stands that provide habitat for the federally threatened VELB. The addition of 100 boat slips may require dredging/fill of wetlands and loss of wetland habitat. Temporary impacts associated with construction of such facilities could include increased erosion and increased potential for weed/invasive species invasion. As this zone is largely developed with marina-related facilities, this impact is considered moderate.

Preferred Alternative and Alternative 4: Moderate Impact

Implementation of the Preferred Alternative may result in the development of a multi-use facility. Because it will include a water safety training element, it is likely to be placed along the shoreline, which would impact a seasonal shoreline wildlife corridor. If it is placed outside of the high-use area, it has the potential to adversely impact grassland/oak savanna vegetation that potentially supports California horned

lizard (CSC) and burrowing owl (CSC) habitat. This alternative may also potentially eliminate elderberry stands that provide habitat for the federally threatened VELB. An increase in the number of boat slips by between 30 and 50 percent under the Preferred Alternative and Alternative 4 will involve an extension of the existing dock system, possible improvements to the breakwater system, and expanded landside facilities to accommodate the increased slip capacity. In addition to potential impacts to grassland/oak savanna vegetation, elderberry stands, and the seasonal shoreline movement corridor (see above), the marina facilities may require dredging/fill of wetlands and result in the loss of wetland habitat. Temporary impacts associated with construction of such facilities could include increased erosion and increased potential for weed/invasive species invasion. As this zone is largely developed with marina-related facilities, this impact is considered moderate. Implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, WILDLIFE-7, SHORELINE-1, WOODLAND-1 and -2, GRASSLAND-1 through GRASSLAND-3, and RIPARIAN-5 through RIPARIAN-7 and Mitigation Measure BIO-2, described above, will reduce the impacts to a level below significance.

Alternative 3: Moderate Impact

Alternative 3 differs from the others in that it includes provisions for an expansion and enhancement of the equestrian staging area and a reconfiguration and expansion of the marina capacity to include the Mormon Island Point side of the ravine. An expansion of the equestrian staging area is expected to involve minimal ground disturbance, but has the potential to impact oak woodland and grassland/oak savanna habitat and/or the special status plant and wildlife species associated with these vegetation types. See Preferred Alternative above for special status species impacted. This alternative may also potentially eliminate elderberry stands that provide habitat for the federally threatened VELB. An expansion of Brown's Ravine Marina into Mormon Island Cove, which would also include an access road to the facilities, also has the potential to adversely impact oak woodland and grassland/oak savanna habitat and the special status species associated with these two vegetation types. See "Mormon Island Cove" below for additional impacts. Implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, WOODLAND-1 and -2, GRASSLAND-1 through GRASSLAND-3, and RIPARIAN-5 through RIPARIAN-7 will reduce the impacts of the expanded equestrian staging area to a level below significance. No mitigation measures are necessary.

Mormon Island Cove*No Project: Moderate Impact*

The No Project alternative proposes trail upgrades, 30 picnic sites, and restrooms, which, depending upon their placement, have the potential to adversely impact oak woodland, grassland/oak savanna, and riparian habitat and/or the special status plant and wildlife species associated with these vegetation types. As this site is minimally developed and in a primarily natural state, even minor recreational facilities additions or improvements have the potential to impact these habitats. Grassland vegetation located in this zone has the potential to support California horned lizard (CSC), burrowing owl (CSC), and loggerhead shrike (CSC) habitat. Riparian vegetation may provide habitat for yellow-breasted chats (CSC), yellow warblers (CSC), western pond turtles (CSC), California red-legged frogs (CSC/FT) and foothill yellow-legged frogs (CSC). This alternative may also potentially eliminate elderberry stands that provide habitat for the federally threatened VELB.

Preferred Alternative and Alternative 4: Moderate Impact

These alternatives propose a Class I bike path from the Mormon Island Dam trailhead to Dike 7, which, depending upon its placement, has the potential to adversely impact oak woodland, grassland/oak savanna, and riparian habitat and/or the special status plant and wildlife species associated with these vegetation types. See No Project alternative above for special status species impacted. This alternative may also potentially eliminate elderberry stands that provide habitat for the federally threatened VELB. Implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, WOODLAND-1 and -2, GRASSLAND-1 through GRASSLAND-4, RIPARIAN-1, RIPARIAN-5 through RIPARIAN-8, RIPARIAN-10, RIPARIAN-15, and WATER-1 and -2 will reduce the impacts to a level below significance. No mitigation measures are necessary.

Alternative 3: High Impact

The provision of walk-in picnic sites and the expansion of Brown's Ravine Marina into this zone, including roads, parking areas, boat ramps, slips, dry storage and other facilities, would require significant ground disturbance that could result in impacts to riparian, oak woodland, and grassland/oak savanna habitat and/or the special status plant and wildlife species associated with these vegetation types. See No Project alternative above for special status species impacted. This alternative may also potentially eliminate elderberry stands that provide habitat for the federally threatened VELB. Development of boat ramps, docks and slips may require dredging/fill of wetlands and result in the loss of wetland habitat. Temporary impacts

associated with construction of such facilities could include increased erosion and increased potential for weed/invasive species invasion. The level of development proposed under Alternative 3 would be considered a potentially significant biological impact because of the natural state of the zone. Implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, WOODLAND-1 and -2, GRASSLAND-1 through GRASSLAND-4, RIPARIAN-1, RIPARIAN-5 through RIPARIAN-8, RIPARIAN-10, RIPARIAN-15, WATER-1 and -2, and Mitigation Measure BIO-2, described above, will reduce the impacts to a level below significance.

Mormon Island Preserve

No Project: High Impact

Mormon Island Preserve is a major wetland habitat area that includes several areas of vernal pools and is one of only two management zones in the Unit with the Preservation management directive. As such, depending upon their placement, the proposed interpretive trail, observation blinds, and 15 parking spaces have the potential to significantly impact sensitive wetland (seasonal and vernal pool), riparian, and grassland/oak savanna habitat and/or the special status plant and wildlife species associated with these vegetation types. Grassland vegetation located in this zone has the potential to support California horned lizard (CSC), burrowing owl (CSC), and loggerhead shrike (CSC) habitat. Riparian vegetation may provide habitat for yellow-breasted chats (CSC), yellow warblers (CSC), western pond turtles (CSC), California red-legged frogs (CSC/FT) and foothill yellow-legged frogs (CSC). Tricolored blackbirds (CSC) are associated with freshwater marsh/pond habitat. This alternative may also potentially eliminate elderberry stands that provide habitat for the federally threatened VELB and impact wading bird roosting areas and rookeries along the shoreline. The ranger-led access only provision would likely reduce the level of impact on seasonal wetland and vernal pool habitat once the interpretive trail is in place.

Preferred Alternative, Alternative 3, and Alternative 4: High Impact

These alternatives propose a Class I bike path around the perimeter of the zone to preserve the more sensitive core, and an upgrade of the trailhead and existing boardwalks in the Wetland Preserve. Depending upon its placement, the proposed bike path has the potential to significantly impact sensitive wetland (seasonal and vernal pool), riparian, and grassland/oak savanna habitat and/or the special status plant and wildlife species associated with these vegetation types. See the No Project alternative above for special status species impacted. The management directive for the implementation of the trail states that “[the trail] will serve to define the zone of

protection for the wetland and vernal pools in the Preserve and discourage human intrusion into sensitive areas.” The proposed improvements in the vicinity of the vernal pools has the potential to disrupt this habitat, but the management directive for the trailhead states that it shall be placed in an area that will least impact resources. Implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, GRASSLAND-1 through GRASSLAND-4, WOODLAND-1 and 2, RIPARIAN-1, RIPARIAN-5 through RIPARIAN-8, RIPARIAN-10, RIPARIAN-12 and -13, RIPARIAN-15, WATER-1 and -2, VERNAL-1 through VERNAL-3, VERNAL-7 through VERNAL-10, MARSH/POND-1, and MARSH/POND-4 and -5 will reduce the impacts to a level below significance. No mitigation measures are necessary.

Folsom Point

No Project: Moderate Impact

The incomplete management directives for this alternative concern Observation Point, which has been closed since September 11, 2001, due to security concerns associated with Folsom Dam. Were it to be opened to the public, the additional development of a multi-use facility that may include a visitor center, restaurant and other public uses at Observation Point has the potential to adversely affect existing elderberry stands that provide habitat for the federally threatened VELB. Although this site is primarily developed with ruderal vegetation, an increase in facilities and use has the potential to impact oak woodland habitat and/or the special status plant and wildlife species associated with this vegetation type. The placement of a boat dock has the potential to result in increased erosion, loss of wetland habitat, and increased potential of weed/invasive species invasion.

Preferred Alternative and Alternative 4: Moderate Impact

Development of a Class I bike path has the potential to significantly impact elderberry stands, oak woodland, grassland/oak savanna habitat and/or the special status plant and wildlife species associated with these vegetation types. Grassland vegetation located in this zone has the potential to support California horned lizard (CSC) habitat. The improvements and additions pertaining to Folsom Point include a reconfiguration of the picnic area and addition of restroom facilities, possible reconfiguration/relocation of the entrance, expansion of parking at the boat ramp, and an expansion of boat lane capacity. Although these improvements would occur in a fairly developed day use area, there is still a potential for impacts to oak woodland habitat. A reconfiguration of the existing boat ramp may include either the addition of extra launch lanes or an extension of the ramp to lower lake levels. These

actions have the potential to result in increased erosion, loss of wetland habitat, and increased potential of weed/invasive species invasion. Implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, WOODLAND-1 and -2, GRASSLAND-1, RIPARIAN-5 through RIPARIAN-7, and Mitigation Measure BIO-2, described above, will reduce the impacts to a level below significance.

Alternative 3: High Impact

Alternative 3 also includes a multi-use facility, but one that focuses on providing boating safety instruction for motorized boats. Depending upon its placement along the shoreline, it has the potential to impact oak woodland and grassland/oak savanna habitat and/or the special status plant and wildlife species associated with these vegetation types. Grassland vegetation located in this zone has the potential to support California horned lizard (CSC) habitat. A formal beach area between the picnic area and Mormon Island Dam has the potential to adversely impact grassland/oak savanna habitat and the sensitive species associated with this vegetation type. Placement of a beach and associated facilities may also potentially eliminate elderberry stands that provide habitat for the federally threatened VELB. The impacts associated with the beach area will result from both the construction of the beach and the increased visitor use. Implementation of guidelines SUSTAIN-1, PLANTS-1, WILDLIFE-1, WOODLAND-1 and -2, GRASSLAND-1, and RIPARIAN-5 through RIPARIAN-7 will reduce the impacts to a level below significance. No mitigation measures are necessary.

Implementation of the above listed guidelines and mitigation measures would reduce impacts affecting biological resources to less than significant levels. The conditions included in the Significance Criteria (BIO-a through BIO-d) have been addressed.

4.4.6 Cultural Resources

4.4.6.1 Affected Environment

4.4.6.1.1 *Setting*

Prehistoric and historical resources spanning more than 4000 years are present within Folsom Lake State Recreation Area (the Unit). There are at least 229 cultural resources identified within the Unit, and it is highly likely that additional resources will be identified in the future. These resources range from prehistoric archaeological sites to historic hydroelectric facilities, mining-related resources, camps, ranches, and trails.

PREHISTORIC AND HISTORICAL SETTING

Archaeological excavations conducted near the Unit give a glimpse of the earliest inhabitants of the Sierra foothills. Early prehistoric groups, who may have been the ancestors of today's Washoe people, occupied and intensively used base camps situated in favorable settings, leaving these camps to make seasonal foraging rounds in areas offering resource abundance and diversity. Later, at approximately A.D. 500, populations began to emphasize the processing of plant food resources. Between A.D. 600 and 800, the bow and arrow were introduced, and circa A.D. 1400-1600, the mortar and pestle became used intensively.

While the reasons for this shift in resource use and settlement patterns remain unclear, archaeologists hypothesize that population growth and environmental change induced migration or displacement of the Washoe people from their ancestral lands in the foothill region. At the time of European contact, the land which became the Unit lay within the territory of the Nisenan, the southern linguistic group of the Maidu tribe. Located far from Spanish missions and settlements, late 18th and early 19th-century Nisenan retained their traditional lifeways longer than many of California's native peoples. The first severe impact of the colonization of California came in the 1830s, when a series of epidemics swept through the Central Valley.

In 1839, Johann Sutter, a Swiss immigrant, established a fort on the Sacramento River. Many native Californians came under Sutter's control, working either at his New Helvetia settlement or, at his direction, at other ranchos in the region. Sutter's Fort soon became the major stopping point for overland travelers coming down from the Sierra Nevada.

Sutter's dominance of the regional economy was shortlived. In 1848, James W. Marshall, Sutter's foreman, discovered gold in the South Fork of the American River. Within months, the American River region was flooded with gold seekers. Miners came from a myriad of

cultures and countries, including the United States, China, Hawaii, and New South Wales. The colorful names given to early mining settlements – Mormon Island, Alabama Bar, and Sailor’s Bar, among others – give an impression of the range of origins of the area’s inhabitants. Stores, saloons, roads, ferries, and bridges were built to supply the miners with various necessities.

By the 1850s, most of the gold which could be easily retrieved by miners with simple tools had been taken from the hills and streams. Miners organized companies and turned to hydraulic mining. In the 1860s, Horatio Gates Livermore, owner of one of these companies, the Natoma Water and Mining Company, decided to initiate a new project – damming the American River to generate electricity and provide a steady supply of water for crops. Though the elder Livermore did not live to see the completion of the project, his sons oversaw the construction of the first Folsom Dam, using convict labor, in the 1880s. In July of 1895, the Folsom Hydroelectric Plant brought electric power over 22 miles of uninsulated lines to Sacramento.

The powerhouse at Folsom Lake remained in operation until 1952. In 1955, a new pair of dams were completed at Folsom, the Folsom and Nimbus dams. The dams generate hydroelectric power, prevent flooding, and provide water for agriculture and domestic use. The lakes created by the dams are also valued recreation resources. Both Folsom and Nimbus Dams have been determined to be eligible for the National Register of Historic Places. Reclamation has proposed both structures for listing on the Register as part of the Central Valley Project multiple property listing.

SENSITIVITY SUMMARY

A total of 229 archaeological sites have been identified within the Unit: 150 prehistoric, 58 historical, 21 with both prehistoric and historical components, and 27 which cannot be assigned to either a prehistoric or historical category because of incomplete documentation. Both prehistoric and historical sites are most likely to be located along the original American River channels. Operation of the reservoir has also had an impact on the Unit’s archaeological resources. Erosion and wave action have had a detrimental effect on soils containing archaeological deposits, particularly within the reservoir’s seasonal fluctuation zone between. The integrity of archaeological sites within this zone is likely to have been affected.

While archaeological sites are most likely to be located as described above, previous studies have found that sites may be located throughout the Unit.

4.4.6.1.2 *Regulatory Considerations*

Cultural resources within the Unit are protected under both federal law and California state law. Depending on whether a resource or action occurs on State or federal lands within the unit, either State or federal law or both may apply. In some instances, federal law may supersede State law. Both sets of laws have the same basic goal: the preservation and protection of cultural resources.

FEDERAL CULTURAL RESOURCES LAW

National Historic Preservation Act of 1966, as Amended. The National Historic Preservation Act (NHPA) of 1966, as amended in 1992, established the federal government's policy on the protection and preservation of significant cultural resources. NHPA and its implementing regulations, 36 CFR Part 60, 36 CFR Part 63, and the related 36 CFR Part 800, are the most far-reaching of the federal government's cultural resource protection laws.

Under Section 106 of the NHPA, the federal agency responsible for an undertaking must consider whether the undertaking will have an effect on cultural resources listed, or eligible for listing, on the National Register of Historic Places (National Register). Cultural resources meeting the criteria for evaluation (36 CFR 60.4) are considered eligible for the Register. Resources that are eligible for listing, or are listed on the National Register are termed historic properties. If an action or undertaking is proposed which could potentially affect historic properties, the federal agency must comply with Section 106 of the NHPA using the process outlined in 36 CFR Part 800. This process includes identifying any historic properties within the Area of Potential Effect (APE) of the undertaking; conducting an assessment of any adverse effects to such properties; and seeking to resolve any adverse effects identified. Throughout this process, consultation occurs with the State Historic Preservation Officer (SHPO) and any other potentially interested parties, including Native American Tribes. The consultation process may also involve the Advisory Council on Historic Preservation.

National Register Criteria. The criteria for determining a cultural resource's eligibility for National Register listing are defined at 36 CFR §60.4 and are as follows:

. . .the quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and

- That are associated with events that have made a significant contribution to the broad patterns of our history; or

- That are associated with the lives of persons significant in our past; or
- That embody the 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; or
- That have yielded, or may be likely to yield, information important in prehistory or history (National Register Bulletin #15, NPS 1997).

In addition to meeting one or more of the significance criteria, a cultural resource must retain its historical integrity to be considered eligible for listing in the National Register. To possess integrity, a property must be able to convey its significance. National Register Bulletin *How to Apply the National Register Criteria for Evaluation* states that the quality of significance is present in districts, sites, buildings, structures, and objects that possess integrity. There are seven aspects of integrity to consider when evaluating a cultural resource: location, design, setting, materials, workmanship, feeling, and association.

Archaeological Resources Protection Act. The Archaeological Resources Protection Act of 1979 (ARPA) regulates access to archaeological resources – defined as the material remains of past human activities which are over 100 years old – on federal lands and/or tribal lands administered by the federal government. ARPA restricts excavation or removal of archaeological resources on federal and/or tribal lands to individuals and groups with permits from the relevant federal land management agency. It also forbids the sale, purchase, exchange, transport, or receipt of any materials obtained in violation of ARPA. ARPA can be used by federal land-managing agencies to prosecute individuals suspected of illegal removal of archaeological items from public lands.

Native American Graves Protection and Repatriation Act. The Native American Graves Protection and Repatriation Act of 1989 (NAGPRA) provides that the ownership or control of Native American human remains and associated funerary objects excavated or discovered on Federal or tribal lands after November 16, 1990 belongs to the lineal descendants of the Native American buried or, if lineal descendants cannot be identified, ownership belongs to the tribe which has “...the closest affiliation with such remains or objects and which, upon notice, states a claim for such remains or objects.” (25 USC 3002 §3 (a)) When such remains are discovered on Federal or tribal property, NAGPRA mandates consultation between the federal agency which manages the lands and the tribe which is associated with the remains. NAGPRA applies to Native American remains and items identified as funerary objects, sacred objects or objects of cultural patrimony from federal lands within the Unit.

American Indian Religious Freedom Act. The American Indian Religious Freedom Act states that Native Americans have the freedom to practice their traditional religions, “. . . including but not limited to access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites” (42 CFR 21 (I) § 1996).

Archaeological and Historic Preservation Act of 1974 (Moss-Bennett). The Archaeological and Historical Preservation Act of 1974 (AHPA), also known as the Archaeological Data Preservation Act of 1974 (ADPA), directs federal agencies to report to the Secretary of the Interior undertakings which may cause the loss of “significant scientific, prehistorical, historical, or archaeological data;” it permits agencies to recover this data themselves or request that data recovery be conducted by the Department of the Interior; and it authorizes agencies to transfer up to one percent of the total cost of a project to the Department of the Interior to fund data recovery.

Historic Sites Act of 1935. The Historic Sites Act of 1935 declared that it was a national policy “. . . to preserve for public use historic sites, buildings, and objects of national significance for the inspiration and benefit of the people of the United States” (16 U.S.C. 461). It gives specific powers and duties related to cultural resources to the Secretary of the Department of the Interior and the National Park Service.

Antiquities Act of 1906. The Antiquities Act provides for fining and imprisonment of individuals who “appropriate, excavate, injure, or destroy any historic or prehistoric ruin or monument, or any object of antiquity, situated on lands owned or controlled by the Government of the United States,” without a permit issued by the agency with jurisdiction over the property in question. The act also authorizes the President to create national monuments and permits the issuance of permits for scientific and educational excavation of archaeological sites.

CALIFORNIA CULTURAL RESOURCES LAW

California Register Criteria. A cultural resource is evaluated under four California Register criteria to determine its historical significance. A resource must be significant at the local, state, or national level in accordance with one or more of the following criteria:

- Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
- Is associated with the lives of persons important in the state’s past;

- Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- Has yielded or may be likely to yield, important information regarding prehistoric or historical conditions.

In addition to meeting one or more of the criteria listed above, the California Register requires that a resource possess integrity: the ability to convey its significance. To retain integrity, the original location, design, setting, materials, workmanship, feeling, and association of the resource should be intact. Which of these factors are most important will depend on the criteria under which the resource is considered eligible for listing.

California Native American Graves Protection and Repatriation Act of 2001 (Cal NAGPRA). Cal NAGPRA applies to all state agencies and museums that receive state funding or have possession or control over collections of human remains or cultural items. The act applies to remains and items associated with California tribes, which may or may not be federally recognized. Existing collections must be inventoried, with the inventories supplied to the Repatriation Oversight Commission. New finds are subject to the same process.

California Public Resources Code, Section 5024. Section 5024 of the Public Resources Code mandates that State agencies preserve and maintain, when prudent and feasible, all State-owned resources under their jurisdiction. The California Office of Historic Preservation maintains a master list of state-owned historic resources, and agencies may not “alter the original or significant historical features or fabric, or transfer, relocate, or demolish historical resources on the master list maintained pursuant to subdivision (d) of Section 5024 without, early in the planning processes, first giving notice and a summary of the proposed action to the [state historic preservation] officer who shall have 30 days after receipt of the notice and summary for review and comment. . . .” Section 5024.5 also states that “until such time as a structure is evaluated for possible inclusion in the inventory pursuant to subdivisions (b) and (c) of Section 5024, State agencies shall assure that any structure which might qualify for listing is not inadvertently transferred or unnecessarily altered.”

State Parks will use its project planning and project review processes for obtaining compliance with PRC §5024 and other State cultural resource mandates. The review process also implements State Parks’ Amended Memorandum of Understanding (AMOU) with the California Office of Historic Preservation (OHP) in reference to the PRC §5024.5 process. PRC §5024.5 requires state agencies such as State Parks to consult with the State Historic

Preservation Officer (SHPO) on any actions that could adversely affect historical resources. The AMOU provides State Parks, due to the presence of qualified cultural resources staff, the authority to review and determine appropriate treatment measures internally. In this way cultural resource preservation guidance is inserted into all department project design and reviews. The procedures outlined in the MOU ensure effective and efficient performance in the inventory, evaluation, preservation, and management of cultural resources within the context of project development.

PRC 5024 and State Parks compliance with State law and regulation do not supplant Reclamation's requirements under Section 106 for any actions on federal property or federal undertakings.

California Public Resources Code, Section 5097. This bill addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction; establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project; and establishes the Native American Heritage Commission to resolve disputes regarding the disposition of such remains. It has been incorporated into Section 15064.5(e) of the CEQA Guidelines. On federal lands, NAGPRA and 43 CFR 10 would apply.

4.4.6.2 Significance Criteria and Evaluation Methodology

Potential significant impacts associated with cultural resources have been evaluated using the criteria in CEQA Guidelines Sections 15000-15387 and the federal process for evaluating significance and assessing adverse effects detailed in 36 CFR 800. The project would have a significant effect on cultural resources if it would:

- CULT-a:** Cause an adverse effect to an historic property as defined and determined through the Section 106 process outlined in 36 CFR 800;
- CULT-b:** Cause a substantial adverse change in the significance of a historical resource as defined in California Code of Regulations Section 15064.5;
- CULT-c:** Cause a substantial adverse change in the significance of an archaeological resource pursuant to California Code of Regulations Section 15064.5;
- CULT-d:** Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or

CULT-e: Disturb any human remains, including those interred outside of formal cemeteries.

4.4.6.3 Environmental Evaluation and Mitigation Measures

The environmental consequences associated with implementing the project alternatives (Preferred Alternative, Alternative 3, and Alternative 4) and the No Project Alternative are summarized for Cultural Resources in Table 6.A. For all alternatives, resource categories and management zones that have an evaluation of “High” effect or “Moderate” effect are more fully described below to present the level of effect. Where necessary, mitigation measures are present to reduce potential impacts.

4.4.6.3.1 Guidelines

The Plan contains specific guidelines (referenced below) to avoid, minimize, or compensate for these impacts by:

- Guideline CULTURE-13: Protect cultural resources from adverse effects until the site is recorded, evaluated and eligibility for the National Register of Historic Places or California Register of Historical Resources has been determined.
- Guideline CULTURE-14: Prior to new facility construction or other ground disturbing activities follow federal (36 C FR 800) and State regulations and processes to identify cultural resources. Unless site-specific surveys that have been completed by a qualified archaeologist can verify that cultural resources are absent, areas with known cultural resources should be avoided.
- Guideline CULTURE-15: Reclamation and State Parks are required to follow the Section 106 (36 CFR 800) and PRC 5024 processes for reviewing projects and actions occurring on federal and State lands respectively.
- Guideline CULTURE-17: Prioritize cultural resources for protection and management measures and actions. Management actions should focus on the most significant cultural resources and sites and those resources/sites that contain the most data potential.

- Guideline CULTURE-18: Research, plan, and implement protective measures for sites within the draw-down zone of the reservoir.
- Guideline CULTURE-19: Develop partnerships and collaborate with site stewardship groups and Native American groups to assist in the monitoring and protection of cultural resources.
- Guideline CULTURE-20: Prohibit metal detector use within the unit.
- Guideline CULTURE-21: Post information regarding the illegality of activities such as pot-hunting and metal detecting in prominent locations throughout the unit.
- Guideline CULTURE-22: Prohibit unrestricted off-road vehicle use below high pool on Folsom Lake.
- Guideline CULTURE-24: As part of the unit Fire Management Plan, develop policies and guidelines which will serve to protect known and as yet unidentified cultural resources.

4.4.6.3.2 *Impacts*

Impact CULT-1: Ground-disturbing activities could affect historical, archaeological, and paleontological resources (Significance Criterion CULT-a through CULT-d).

Ground-disturbing activities, which may occur as part of park facility development, maintenance, and natural resource management, may disturb known or unknown cultural resources. In addition to the existing State and federal laws that State Parks will abide by, implementation of the guidelines described above will minimize the possibility that disturbance to cultural resources will occur during ground-disturbing activities. However, due to the relative sensitivity of the entire SRA it is possible that previously unknown cultural or paleontological resources could be discovered during grading and excavation work associated with new construction.

Table 6.A: CULTURAL RESOURCES IMPACTS EVALUATION

<i>Park-Wide Goals and Guidelines</i>				
Resource	No Project	Preferred Alternative	Alternative 3	Alternative 4
Invasive Exotic Plant Species	No Impact	Moderate	Moderate	Moderate
Vegetation Management	Moderate	Moderate	Moderate	Moderate
Cultural Resource Management	No Impact	Moderate	Moderate	Moderate
Wildlife Management	No Impact	No Impact	No Impact	No Impact
Watershed/Water Quality Management	High	No Impact	No Impact	No Impact
Visual Resources	No Impact	No Impact	No Impact	No Impact
Unitwide Interpretation	Moderate	Moderate	Moderate	Moderate
Visitor Services			see below	
Visitor Capacity			see below	
Park Operations			see below	
<i>Specific Area Goals and Guidelines</i>				
Management Zone	No Project	Preferred Alternative	Alternative 3	Alternative 4
Nimbus Dam	Low	Low	Low	Low
Nimbus Flat/Shoals	Low	Moderate	Moderate	Low
Lake Overlook	Low	Moderate	Moderate	Moderate
Mississippi Bar	Low	High	High	High
Negro Bar	Low	Moderate	Moderate	Low
Natoma Canyon	Low	Low	Low	Low
Folsom Powerhouse	Low	High	High	High
Natoma Shore North	Low	Low	Low	Low
Natoma Shore South	High	High	Moderate	Low
Lower Lake Natoma (AQ)	No Impact	No Impact	No Impact	No Impact
Upper Lake Natoma (AQ)	No Impact	No Impact	No Impact	No Impact
Folsom Dam	Low	Moderate	Moderate	Moderate
Beals Point	Low	Moderate	Moderate	Low
Mooney Ridge	High	Low	Low	Low
Granite Bay South	Low	High	High	High
Granite Bay North	High	Low	Moderate	Low
Placer Shore	Low	Low	Low	Low
Rattlesnake Bar	Moderate	Moderate	High	Low
North Fork Shore	Low	Low	Low	Low
Anderson Island	No Impact	No Impact	No Impact	No Impact
Peninsula	High	High	High	High
Darrington	Low	Low	Low	Low
Skunk Hollow/Salmon Falls	Low	Low	Low	Low
El Dorado Shore	High	Low	High	Low
Brown's Ravine	Moderate	Moderate	High	Moderate
Mormon Island Cove	Low	Low	High	No Impact
Mormon Island Preserve	No Impact	No Impact	No Impact	No Impact
Folsom Point	High	High	High	High
Folsom Lake (AQ)	No Impact	No Impact	No Impact	No Impact
Middle North Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Upper North Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Middle South Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Upper South Fork (AQ)	No Impact	No Impact	No Impact	No Impact

Mitigation Measure CULT-1a: If deposits of prehistoric or historical archaeological materials are discovered during project activities, all work within the immediate vicinity of the discovery shall be redirected until the appropriate State and/or federal cultural resources staff can assess the situation and provide recommendations consistent with State and federal laws. It is recommended that adverse effects to such deposits be avoided by project activities. If such deposits cannot be avoided, they shall be evaluated for their eligibility for listing on the National Register of Historic Properties or the California Register of Historical Resources. If the resources are not eligible, avoidance is not necessary, but may still be desirable. If the resources are eligible, they shall be avoided or any adverse effects shall be mitigated consistent with State and federal laws. (Cultural resource reviews conducted in compliance with Section 106 and 36 CFR 800 [federal property] and PRC 5024 [State property] will determine procedural conditions and mitigation measures.)

Mitigation Measure CULT-1b: If paleontological resources are encountered during project subsurface construction and no monitor is present, all ground-disturbing activities shall be redirected within the immediate vicinity of the find until a qualified paleontologist can be contacted to evaluate the find and make recommendations. Scientifically significant paleontological resources shall be protected consistent with State Parks policy (DOM 0309.2). The preference is to avoid impacts to significant paleontological resources. If found to be significant and project activities cannot avoid the paleontological resources, adverse effects to paleontological resources shall be mitigated, which may include monitoring, collection, documentation, and the accession of all fossil material to a paleontological repository as determined by the site-specific evaluation by a qualified paleontologist.

Impact CULT-2: Development of facilities could potentially impact a unique paleontological resource or site or unique geologic feature (Significance Criterion CULT-c).

The most interesting geologic feature of the Folsom Lake area is the contact between the younger, intruded plutons and the older, pre-existing metamorphic rocks. This feature is well exposed near the Peninsula campground and at Rattlesnake Bar (see Section 4.4.4, “Geology and Soils”). Expansion and development of recreational facilities in these areas could adversely impact this unique geologic feature.

Mitigation Measure CULT-2: Expansion and/or development of additional facilities at Rattlesnake Bar and the Peninsula shall avoid disruption to unique geologic features. During construction, exclusionary ESA fencing and monitoring may be required to prevent inadvertent intrusions by construction activities. Interpretive displays shall also be constructed to inform park visitors of this unique geologic formation.

Impact CULT-3: Ground-disturbing activities could disturb human remains (Significance Criterion CULT-e).

Ground-disturbing activities within the project area have the potential to unearth human remains interred outside of formal cemeteries. Implementation of Mitigation Measure CULT-3, described below, would reduce potential impacts to a level below significance.

Mitigation Measure CULT-3: If human remains are encountered, work shall cease in the immediate area of the discovery and the appropriate State or federal process followed depending on whether discovery is on State or federal lands. In the case of federal lands the provisions of NAGPRA, 43 CFR Part 10 and Reclamation LND 07-01 define the process to be followed. On State lands, the Coroner will be notified immediately consistent with §7050.5 of the California Health and Safety Code. Any human remains and/or funerary objects shall be left in place. At the same time, a qualified archaeologist shall be contacted to evaluate the situation. If the human remains are of Native American origin, the Coroner must notify the Native American Heritage Commission within 24 hours of identification. The Native American Heritage Commission shall identify a Native American Most Likely Descendent to inspect the site and provide recommendations for the proper treatment and disposition of the remains and any associated funerary objects. Section 7050.5 of the California Health and Safety Code states that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined whether or not the remains are subject to the coroner's authority.

Specific impacts related to ground-disturbing activities are described below.

PARK-WIDE GOALS AND GUIDELINES

Invasive Exotic Plant Species

Preferred Alternative, Alternative 3, and Alternative 4: Moderate Impact

Implementation of prescribed burns to control invasive exotic plant species could expose soils and potentially unearth previously buried cultural and paleontological resources. Implementation of the guidelines described above and Mitigation Measures CULT-1a, CULT-1b, and CULT-3, described above, would reduce potential impacts to a level below significance.

Vegetation Management

All Alternatives: Moderate Impact

See “Invasive Exotic Plant Species” above.

Watershed/Water Quality Management

No Project: High Impact

Installation of sewage treatment/disposal facilities for maintaining water quality has the potential to unearth previously buried cultural and paleontological resources. The No Action/No Project Alternative would not implement the guidelines developed for the Plan, but existing State and federal laws would still protect cultural resources.

Cultural Resources Management

Preferred Alternative, Alternative 3 and Alternative 4: Moderate Impact

Implementation of these alternatives would result in the additional development of interpretive facilities, such as the State Indian Museum and the Negro Bar Cultural Center at various locations within the park. Potential impacts related to construction of these facilities are addressed by management zone in the Specific Area Goals and Guidelines section below.

Unitwide Interpretation

All Alternatives: Moderate Impact

Implementation of these alternatives would result in the additional development of interpretive facilities, such as the State Indian Museum and the Negro Bar Cultural Center at various locations within the park. Potential impacts related to construction of these facilities are addressed by management zone in the Specific Area Goals and Guidelines section below.

SPECIFIC AREA GOALS AND GUIDELINES

Nimbus Flat/Shoals

Preferred Alternative: Moderate Impact

Implementation of the Preferred Alternative could result in the development of a multi-use facility to include flexible classroom and event space, kitchen facilities, storage, administrative area, exhibit area, and other visitor services facilities.

Construction of these facilities would require ground-disturbing activities that could result in impacts to unknown cultural or paleontological resources. However, as this area has already been largely developed and disturbed by previous construction activities, this impact is considered moderate. Implementation of the guidelines described above and Mitigation Measures CULT-1a, CULT-1b, and CULT-3, described above, would reduce potential impacts to a level below significance.

Alternative 3: Moderate Impact

Implementation of Alternative 3 would result in the development of an artificial whitewater course channel and associated spectator facilities. Construction of these facilities would require ground-disturbing activities that could result in impacts to unknown cultural or paleontological resources. However, as this area has already been largely developed and disturbed by previous construction activities, this impact is considered moderate. Implementation of the guidelines described above and Mitigation Measures CULT-1a, CULT-1b, and CULT-3, described above, would reduce potential impacts to a level below significance.

Lake Overlook

Preferred Alternative, Alternative 4: Moderate Impact

Implementation of these alternatives would result in the additional development of day-use facilities, including vista point/viewing platform, formalized trailheads, interpretive displays, and shade ramadas. Construction of these facilities would require ground-disturbing activities that could result in impacts to unknown cultural or paleontological resources. Due to the limited extent of ground disturbance, this impact is considered moderate. Implementation of the guidelines described above and Mitigation Measures CULT-1a, CULT-1b, and CULT-3, described above, would reduce potential impacts to a level below significance.

Alternative 3: Moderate Impact

Construction of a small amphitheater, associated with implementation of Alternative 3, would require ground-disturbing activities that could result in impacts to unknown cultural or paleontological resources. Due to the limited extent of ground

disturbance, this impact is considered moderate. Implementation of the guidelines described above and Mitigation Measures CULT-1a, CULT-1b, and CULT-3, described above, would reduce potential impacts to a level below significance.

Mississippi Bar

Preferred Alternative, Alternative 4: High Impact

Expansion of development at Mississippi Bar to include picnic areas, vehicle access, parking, toilets and drinking water, would require ground-disturbing activities that could result in impacts to unknown cultural or paleontological resources. In addition, this area contains remnants from historic mining activities, which are important historic resources. Expansion of development at Mississippi Bar could potentially impact these historic mining resources. Therefore, this impact is considered a high impact. Implementation of the guidelines described above and Mitigation Measures CULT-1a, CULT-1b, and CULT-3, described above, would reduce potential impacts to a level below significance.

Alternative 3: High Impact

The additional development of day-use facilities, including a visitor/interpretive center, boat house and docks, picnic sites, entrance station, and parking, and expansion of the Shadow Glen concession would require ground-disturbing activities that could result in impacts to unknown cultural or paleontological resources. . In addition, this area contains remnants from historic mining activities, which are important historic resources. Expansion of development at Mississippi Bar could potentially impact these historic mining resources. Therefore, this impact is considered a high impact. Implementation of the guidelines described above and Mitigation Measures CULT-1a, CULT-1b, and CULT-3, described above, would reduce potential impacts to a level below significance.

Negro Bar

Preferred Alternative: Moderate Impact

Implementation of the Preferred Alternative would result in development of the Negro Bar Cultural Center and expansion of interpretive facilities that would require ground-disturbing activities that could result in impacts to unknown cultural or paleontological resources. As this area has already been developed with day use facilities, this impact is considered moderate. Implementation of the guidelines described above and Mitigation Measures CULT-1a, CULT-1b, and CULT-3, described above, would reduce potential impacts to a level below significance.

Alternative 3: Moderate Impact

Expansion of the group camping area, day use beach area, and existing boat ramp and development of a paddling facility/boathouse would require ground-disturbing activities that could result in impacts to unknown cultural or paleontological resources. As this area has already been developed with day use facilities, this impact is considered moderate. Implementation of the guidelines described above and Mitigation Measures CULT-1a, CULT-1b, and CULT-3, described above, would reduce potential impacts to a level below significance.

Folsom Powerhouse*Preferred Alternative, Alternative 3 and Alternative 4: High Impact*

Development of a visitor center and expansion of the parking area would require ground-disturbing activities that could result in impacts to unknown cultural or paleontological resources, as well as detract from the integrity of the historic resources associated with the Powerhouse. Implementation of the guidelines described above and Mitigation Measures CULT-1a, CULT-1b, and CULT-3, described above, would reduce potential impacts to a level below significance.

Natoma Shore South*No Project and Preferred Alternative: High Impact*

Development of the State Indian Museum would require ground-disturbing activities that could result in impacts to unknown cultural or paleontological resources. Implementation of the guidelines described above and Mitigation Measures CULT-1a, CULT-1b, and CULT-3, described above, would reduce potential impacts to a level below significance. The No Action/No Project Alternative would not implement the guidelines developed for the Plan, but existing State and federal laws would still protect cultural resources.

Alternative 3: Moderate Impact

Implementation of Alternative 3 would result in the expansion of day use facilities in the Willow Creek area, including the development of formalized picnic sites, boat ramp, boat dock and expanded parking area. Construction of these facilities would require ground-disturbing activities that could result in impacts to unknown cultural or paleontological resources. Implementation of the guidelines described above and Mitigation Measures CULT-1a, CULT-1b, and CULT-3, described above, would reduce potential impacts to a level below significance.

Folsom Dam

Preferred Alternative, Alternative 3, and Alternative 4: Moderate Impact

Implementation of these alternatives would result in the development of a consolidated administrative complex, including offices, a visitor center, and an expanded American River Water Education Center. Construction of these facilities would require ground-disturbing activities that could result in impacts to unknown cultural or paleontological resources. Implementation of the guidelines described above and Mitigation Measures CULT-1a, CULT-1b, and CULT-3, described above, would reduce potential impacts to a level below significance.

Beal's Point

Preferred Alternative, Alternative 3: Moderate Impact

Reconfiguration of camping and day-use facilities would require ground-disturbing activities that could result in impacts to unknown cultural or paleontological resources. As this area has already been developed and the extent of ground disturbance is fairly small, this impact is considered moderate. Implementation of the guidelines described above and Mitigation Measures CULT-1a, CULT-1b, and CULT-3, described above, would reduce potential impacts to a level below significance.

Mooney Ridge

No Project: High Impact

Development of a 200-slip marina with snack bar, boating equipment rental, ferry terminal, 250 parking spaces, operations dock/office, and restrooms, would require significant ground disturbance that could result in impacts to unknown cultural or paleontological resources. The No Action/No Project Alternative would not implement the guidelines developed for the Plan, but existing State and federal laws would still protect cultural resources.

Granite Bay South

Preferred Alternative, Alternative 3, and Alternative 4: High Impact

Reconfiguration of the vehicle entrance, boat launch complex, and main beach parking area; expansion of the Activity Center; and development of additional facilities including lifeguard tower, dry dock storage facility, and group picnic area would require significant ground disturbance that could result in impacts to unknown cultural or paleontological resources. Implementation of the guidelines described above and Mitigation Measures CULT-1a, CULT-1b, and CULT-3, described above, would reduce potential impacts to a level below significance.

Granite Bay North*No Project: High Impact*

The addition of 250 parking spaces, paved roads, and paved access to just below the high water mark in the Oak Point/Dotons Point area would require significant ground disturbance that could result in impacts to unknown cultural or paleontological resources. The No Action/No Project Alternative would not implement the guidelines developed for the Plan, but existing State and federal laws would still protect cultural resources.

Alternative 3: Moderate Impact

The addition of a formal beach at Oak Point with parking for approximately 100 vehicles and the expansion of the equestrian staging area would require ground-disturbing activities that could result in impacts to unknown cultural or paleontological resources. Implementation of the guidelines described above and Mitigation Measures CULT-1a, CULT-1b, and CULT-3, described above, would reduce potential impacts to a level below significance.

Rattlesnake Bar*No Project: Moderate Impact*

Implementation of the No Project Alternative would result in additional development of 100 picnic sites, trail camp, staff residence, and floating restrooms and upgrades to the equestrian staging area. Construction of these facilities would require ground-disturbing activities that could result in impacts to unknown cultural or paleontological resources. The No Action/No Project Alternative would not implement the guidelines developed for the Plan, but existing State and federal laws would still protect cultural resources.

Preferred Alternative: Moderate Impact

Implementation of the Preferred Alternative would result in additional development of picnic facilities including group picnic areas with shade armadas, vault toilets, and landscaping and the potential development of additional staff housing. Construction of these facilities would require ground-disturbing activities that could result in impacts to unknown cultural or paleontological resources. Implementation of the guidelines described above and Mitigation Measures CULT-1a, CULT-1b, CULT-2, and CULT-3, described above, would reduce potential impacts to a level below significance.

Alternative 3: High Impact

Implementation of Alternative 3 would result in the development and expansion of day use facilities including extension and widening of the boat ramp, additional parking, improvement of the access road, addition of 50-100 picnic sites, and improvement of trailhead facilities. Construction of these facilities would require ground-disturbing activities that could result in impacts to unknown cultural or paleontological resources. Construction of these facilities could also obscure the boundary between younger, intruded plutons and older pre-existing metamorphic rocks, a unique geologic feature within the Unit. Implementation of the guidelines described above and Mitigation Measures CULT-1a, CULT-1b, CULT-2, and CULT-3, described above, would reduce potential impacts to a level below significance.

Peninsula*No Project: High Impact*

The additional development of shower facilities, RV sanitary station, 200 picnic sites and beach, loop trail, trail staging area and trail camp would require ground-disturbing activities that could result in impacts to unknown cultural or paleontological resources. The No Action/No Project Alternative would not implement the guidelines developed for the Plan, but existing State and federal laws would still protect cultural resources.

Preferred Alternative and Alternative 4: Moderate Impact

The additional development of 50 campsites and trailhead facilities would require ground-disturbing activities that could result in impacts to unknown cultural or paleontological resources. Although this area has already been developed with camping and day use facilities, ground-disturbing activities associated with development would be considered a moderate impact. Implementation of the guidelines described above and Mitigation Measures CULT-1a, CULT-1b, CULT-2 and CULT-3, described above, would reduce potential impacts to a level below significance.

Construction of these facilities could also obscure the boundary between younger, intruded plutons and older pre-existing metamorphic rocks, a unique geologic feature within the Unit. Implementation of the guidelines described above and Mitigation Measure CULT-2, described above, would reduce potential impacts to a level below significance.

Alternative 3: High Impact

The additional development of 100-200 campsites and marina would require significant ground disturbance that could result in impacts to unknown cultural or paleontological resources. Construction of these facilities could also obscure the boundary between younger, intruded plutons and older pre-existing metamorphic rocks, a unique geologic feature within the Unit. Implementation of the guidelines described above and Mitigation Measures CULT-1a, CULT-1b, CULT-2, and CULT-3, described above, would reduce potential impacts to a level below significance.

El Dorado Shore*No Project Alternative: High Impact*

The development of 80 campsites, RV sanitary station, boat dock, boat camping, swim beach with restrooms and trail staging area in the vicinity of New York Creek/Monte Vista would require significant ground disturbance that could result in impacts to unknown cultural or paleontological resources. The No Action/No Project Alternative would not implement the guidelines developed for the Plan, but existing State and federal laws would still protect cultural resources.

Alternative 3: High Impact

The development of paved formalized parking areas at Sweetwater Creek, a major trailhead and staging facility at Falcon Crest and day use facilities in the vicinity of the former Monte Vista campground would require ground disturbance that could result in impacts to unknown cultural or paleontological resources. Implementation of the guidelines described above and Mitigation Measures CULT-1a, CULT-1b, and CULT-3, described above, would reduce potential impacts to a level below significance.

Brown's Ravine*No Project: Moderate Impact*

Implementation of the No Project Alternative would result in development of additional facilities to include dry boat storage and repair building, 100 additional boat slips, and office/storage building for lake patrol. Construction of these facilities would require ground-disturbing activities that could result in impacts to unknown cultural or paleontological resources. As this zone is largely developed with marina-related facilities, this impact is considered moderate. The No Action/No Project Alternative would not implement the guidelines developed for the Plan, but existing State and federal laws would still protect cultural resources.

Preferred Alternative, Alternative 4: Moderate Impact

Implementation of these alternatives would result in development of additional facilities to include additional boat slips and a multi-use facility. It would also entail extension of the existing dock system, reconfiguration of the marina and Hobie Cove boat ramps, and upgrade of the storm water system. Construction of these facilities would require ground-disturbing activities that could result in impacts to unknown cultural or paleontological resources. As this zone is largely developed with marina-related facilities, this impact is considered moderate. Implementation of the guidelines described above and Mitigation Measures CULT-1a, CULT-1b, and CULT-3, described above, would reduce potential impacts to a level below significance.

Alternative 3: High Impact

Under this alternative, Brown's Ravine Marina would be expanded into Mormon Island Cove resulting in significant ground disturbance. See "Mormon Island Cove" below.

Mormon Island Cove*Alternative 3: High Impact*

The expansion of Brown's Ravine Marina into this zone, including roads, parking areas, boat ramps, slips, dry storage and other facilities, would require significant ground disturbance that could result in impacts to unknown cultural or paleontological resources. Implementation of the guidelines described above and Mitigation Measures CULT-1a, CULT-1b, and CULT-3, described above, would reduce potential impacts to a level below significance.

Folsom Point*No Project: High Impact*

The additional development of a visitor/orientation center that may include a restaurant at Observation Point would require significant ground disturbance that could result in impacts to unknown cultural or paleontological resources. Although this area has previously been developed with the Folsom Dam and associated ancillary structures, the level of development proposed under the No Project Alternative would be considered a potentially significant impact. The No Action/No Project Alternative would not implement the guidelines developed for the Plan, but existing State and federal laws would still protect cultural resources.

Preferred Alternative, Alternative 4: High Impact

Implementation of these alternatives would result in the additional development of a multi-use facility at Folsom Point as well as reconfiguration of the picnic area and the boat ramp, expansion of the parking area, and provision of restrooms and drinking water. It would also entail the development of a trailhead at Dike 7, a Class I bike path to Mormon Island Cove, and a Class I bike path across the canyon on the new Folsom Dam Road. Development of these facilities would require significant ground disturbance that could result in impacts to unknown cultural or paleontological resources. Although this area has previously been developed with the Folsom Dam and associated ancillary structures, the level of development proposed under all alternatives would be considered a potentially significant impact. Implementation of the guidelines described above and Mitigation Measures CULT-1a, CULT-1b, and CULT-3, described above, would reduce potential impacts to a level below significance.

Alternative 3: High Impact

Implementation of Alternative 3 would result in the additional development of a multi-use facility at Folsom Point as well as expansion of boat ramp parking and development of a formal beach area. Like the Preferred Alternative and Alternative 4, it would also entail development of a trailhead at Dike 7, a Class I bike path to Mormon Island Cove, and a Class I bike path across the canyon on the new Folsom Dam Road. Development of these facilities would require significant ground disturbance that could result in impacts to unknown cultural or paleontological resources. Although this area has previously been developed with the Folsom Dam and associated ancillary structures, the level of development proposed under all alternatives would be considered a potentially significant impact. Implementation of the guidelines described above and Mitigation Measures CULT-1a, CULT-1b, and CULT-3, described above, would reduce potential impacts to a level below significance.

Implementation of the above listed guidelines and mitigation measures would reduce impacts affecting cultural resources to less than significant levels. Consequently, the conditions included in the Significance Criteria (CULT-a through CULT-e) have been addressed.

4.4.7 Hydrology and Water Quality

4.4.7.1 Affected Environment

4.4.7.1.1 *Setting*

HYDROLOGY

Folsom Lake and Lake Natoma are the primary physical features of the Folsom Lake State Recreation Area (the Unit) and its main attractions. Both lakes occur in the American River Watershed (Figure 7.A). Folsom Lake was created in 1955 by the construction of Folsom Dam, a concrete dam flanked by earth wing dams and dikes with a total length of about 9 miles. The lake features some 10,000 surface acres of water when full and has 75 miles of shoreline. It extends about 15 miles up the North Fork and about 10 ½ miles up the South Fork of the American River. The primary function of the Folsom Dam is flood control. During normal operating conditions, Folsom Lake has a capacity to hold 975,000 acre-feet per year. At the elevation of the spillway, 475.4 feet, the lake has a maximum capacity of 1,120,200 acre-feet. In addition to providing flood protection, the reservoir stores water for irrigation and domestic use, for electrical power generation and to provide flows for wildlife habitat, fish and recreation use along the lower American River. Lake levels can fluctuate significantly, from 466 feet in elevation in early summer to as low 352 feet in early winter, depending on hydrological and meteorological conditions, water demands and flood control and hydropower needs. Average lake level fluctuation ranges from approximately 445 feet in the early summer and 390 feet in early winter.

Lake Natoma, formed by the waters held by Nimbus Dam, is an afterbay or regulating reservoir for Folsom Dam used to regulate flow fluctuations from Folsom Powerplant into the American River and to generate electricity from water releases. Two 6,750-kilowatt generators produce power from Nimbus Dam water releases. Lake Natoma is a smaller water body than Folsom Lake but its water level fluctuates very little (4 – 7 feet). Nimbus Hatchery, located approximately 0.25 miles downstream of Lake Natoma, is operated and maintained by the California Department of Fish and Game and funded by the Reclamation. The hatchery spawns and rears both chinook salmon and steelhead. Nimbus Hatchery draws its water supply from Lake Natoma through a 60-inch pipe in Nimbus Dam.

Heavy storms in February 1986 resulted in a flood higher than any flood previously on record. Precipitation totals for the 1986 storm (which lasted 10 days) were more than half the normal annual rainfall. As a result the United States Army Corps of Engineers (ACOE), in conjunction with other agencies, re-evaluated the hydrology of the American



Folsom Lake State Recreation Area & Folsom Powerhouse State Historic Park
 General Plan/Resource Management Plan

Credit: LSA Associates

Figure 7.A
AMERICAN RIVER WATERSHED

⊕ Not to Scale
 November 2007

River Basin and the existing flood control system. Using updated storm information and inflow data, the ACOE determined that Folsom Dam and Reservoir could only control storm flows for an event with a 63-year recurrence interval. A number of measures to increase the flood protection of Folsom Dam and the levees in the lower American River have been proposed and/or implemented over the past two decades by the primary agencies responsible for flood protection, the ACOE, Sacramento Area Flood Control Agency (SAFCA), the California State Board of Reclamation and the Department of Water Resources. New operational procedures adopted in 1995 allow Reclamation and ACOE to control an additional 270,000 acre-feet of water within Folsom Lake and to provide up to 670,000 acre-feet of flood control storage. The Folsom Dam Modification Project proposed to increase Folsom Dam's storm flow control capability to handle a 140-year event. The Folsom Dam Modification Project included improvements to the outlet structures as well as physical and operational modifications to the use of surcharge storage. The maximum flood control release is currently 115,000 cfs. Improvements to the spillway and release outlets would increase flood control release capacity to 160,000 cfs. In 2002 the ACOE and other flood control agencies approved a plan to raise Folsom Dam and the earthen dikes by seven feet to provide additional storage space in the reservoir during serious flood events. The Folsom Dam "Mini-raise" and the Folsom Dam Modifications in association with the other flood protection measures were projected to provide flood protection above the 200-year level. Congress authorized both projects.

However, in early 2005 it became apparent that the plans to enlarge the outlets in Folsom Dam, a critical part of the package of flood protection measures, was more difficult, riskier and much more costly than previously projected. Concurrent to the proposals to increase flood protection at Folsom Dam and Reservoir, Reclamation has been investigating their needs to strengthen the existing earthen dams and dikes around the reservoir due to hydrologic, seismic and seepage concerns. In the fall of 2005, the ACOE and Reclamation combined forces to work on a Joint Federal Project to improve both dam safety and flood control. A new gated auxiliary spillway around Folsom Dam is the central piece of the flood protection measures (in lieu of enlarging the outlets) in this new joint federal project. This new spillway would run from Observation Point on the south side of the left wing dam down to the river below the existing spillways and outlets. The ACOE and Reclamation have outlined a variety of alternatives which include the auxiliary spillway and proposals to raise the dam and dikes anywhere from zero to seventeen feet. A supplemental EIS/EIR is being prepared.

Any of the action alternatives in this new Joint Federal Project will result in significant construction related-impacts to recreation use and facilities at Folsom Lake SRA. State Parks

is working with Reclamation, the ACOE and other flood control agencies to minimize and mitigate these impacts. The operational impacts of this new joint project are uncertain at this point. The previously approved Folsom Dam Mini-Raise would have raised the elevation of the top of the Dam from 480 feet to 487 feet and allowed for emergency flood storage up to 482 feet elevation. (Currently the reservoir is normally managed with a high pool of 466', yet during extreme flood events the lake elevation can be raised to 474'). One of the operation impacts of the Mini-raise was that if the additional flood storage space above 466' elevation were utilized during an extreme flood event, most of the recreation facilities around Folsom Reservoir would be inundated. The EIS/EIR for the Mini-raise asserted that the operational effects of the project would be less than significant because the risk of flood occurrence is low and the inundation period would be brief and would likely occur during the winter months when most vegetation is dormant. State Parks will be working with Reclamation, the ACOE and other involved agencies on how to minimize and mitigate the operational effects of the new Joint Federal Project.

In addition to all of the above projects, the flood control agencies and Reclamation are also assessing an advance release strategy based on improved weather forecasts would allow Reclamation to increase releases and accommodate incoming flood volumes based on an accurate five-day flow forecast.

In addition to the two lakes, the Unit supports a number of other surface water resources including naturally-occurring water courses and constructed ponds. Several small creeks and streams flow directly into Folsom Lake and Lake Natoma including Willow, Alder, Hinkle, New York and Hancock Creeks. An unknown number of small ephemeral streams (1-2 feet wide) are also located within the Unit. The Unit does not support naturally occurring ponds. However, numerous small ponds have been constructed at Mississippi Bar for dredge tailing purposes and a 2-3 acre body of water, Avery's Pond, was excavated on the northwest shoreline of Folsom Lake. An additional small pond is located just outside the Unit boundary at the end of the Los Lagos Trail.

Groundwater is not recognized as a major resource in the area due to the Unit's underlying geology composed of crystalline or nonporous metamorphic rocks. However, within the Unit boundary, minor groundwater resources may be found along fracture zones in the crystalline rocks. Currently, wells are being used to provide water at several locations within the Unit, including Rattlesnake Bar, the Peninsula campground and boat launch, the residences at Nimbus Flat, and the Shadow Glen stables. Fractured aquifers do not generally support high yield wells; therefore, surface sources will probably be the primary resources for drinking or irrigation water.

WATER QUALITY

Water quality is determined by measuring various physical, chemical, and biological parameters such as dissolved oxygen, nutrients, turbidity, suspended materials, water hardness, toxic substances, oil and coliform. These indicators are compared to criteria (recommended limits) and standards (legal limits set to protect public health) to determine water quality. Folsom Lake, Lake Natoma, and the American River downstream to the Sacramento River, are recognized in the Basin Plan as water bodies that provide a series of “beneficial uses” to the public including water supply, irrigation water, hydropower, recreation, fish spawning and wildlife habitat. These beneficial uses must be taken into account when establishing water quality objectives and evaluating impacts of any proposed activity on water quality. Use by people, domestic animals and aquatic organisms requires stricter water quality criteria than agricultural or industrial uses.

Water quality monitoring in and near the Unit has been conducted by staff from the Reclamation and the Sacramento County Department of Environmental Management and as part of the Sacramento Coordinated Monitoring Program (CMP). The Reclamation has three water quality sampling stations in or near the Unit. These stations are located on the American River below Folsom Dam, on the American River at the headwaters of the Folsom South Canal on Lake Natoma, and behind Folsom Dam at the outlet to the American River. Parameters analyzed for the quarterly water samples from these stations include fecal coliform, heavy metals, nutrients, organic priority pollutants, and a wide variety of pesticides. The Sacramento County Department of Environmental Management conducts occasional bacteriological tests of swimming beaches on the two lakes. The Sacramento Regional Central Sanitation District maintains a water quality monitoring station on the American River below Nimbus Dam. Parameters analyzed for monthly water samples from this station include dissolved oxygen, water temperature, pH, and a wide variety of pesticides.

Overall, the majority of water entering Folsom Lake and Lake Natoma is well-oxygenated, cold water of high quality. Monitoring results indicate that water quality rarely exceeds State of California water quality objectives related to temperature, bacteria, dissolved oxygen, pH, oil and grease, total dissolved solids, and turbidity. As water flows through the two lakes, it is impacted by various sources of water quality degradation that cause water quality problems. Primary water quality problems and concerns include excessive sediment inflow from development in local runoff, pollutant (oils, fertilizer, pesticides) run-off from developed areas that drain into Folsom Lake and Lake Natoma, nutrient inflow to Alder Pond, mercury bioaccumulation in fish from abandoned mining tailings (see Section 4.4.13, Hazardous Materials), potential bacterial contamination of waters heavily frequented by waterfowl, and occasional sewage spills in the watershed from wastewater treatment plants.

Concentrations of contaminants typically increase downstream from Nimbus Dam to the Sacramento River as the river receives runoff from more urban drainages.

Sedimentation is one of the primary resource concerns within the American River Watershed. Over the past two decades, the local watershed for both lakes has become increasingly urbanized and the urbanization process is continuing apace. As a consequence, the water quality of local runoff has decreased while the volume and rate has increased with increased amounts of impervious surface. Storm water runoff associated with housing, roads, and commercial development in the watershed is a source of sediment and petroleum residue. Other contaminants commonly associated with street and parking lot storm water runoff are lead, zinc, nutrients from adjacent fertilized landscaping, and bacteria from dog waste.

The Georgetown Divide Resource Conservation District (GDRCD) completed a watershed assessment in 2003 for the South Fork of the American River Watershed in which sedimentation and fuels management were identified as the primary research concerns within the watershed. Sub-basins located in the foothill zone of the watershed (nearest the Unit) were identified as having the greatest potential to experience adverse water quality effects associated with sedimentation, including the New York, Kelley, Big Sailor and Webber Creek sub-basins (GDRCD 2003). The most visible example of sediment problems associated with local runoff occurs at the Folsom Lake Marina at the mouth of Brown's Ravine. The high sediment load now carried by Brown's Ravine because of upstream development has added approximately 1.5 feet of sediment to the Marina basin in the vicinity of the docks. It has also resulted in the waters of the Marina basin being especially turbid.

4.4.7.1.2 Regulatory Considerations

HYDROLOGY

Executive Order 11988, "Floodplain Management," requires Reclamation to evaluate the potential effects of any actions it may take in a floodplain to (1) ensure that its planning programs consider flood hazards and floodplain management; (2) minimize the impacts of floods on human safety, health and welfare, and (3) restore and preserve the beneficial values served by floodplains. If Reclamation proposes an action that would be undertaken in a floodplain, the agency shall consider alternatives to avoid adverse effects and incompatible development in the floodplain. The floodplains subject to regulation by the executive order include the 100-year, 500-year and extreme floodplains.

WATER QUALITY

The 1972 Water Pollution Control Act, as amended by the Clean Water Act of 1977, established a national policy to restore and maintain the chemical, physical, and biological integrity of the nation's waters; to enhance the quality of water resources; and to prevent, control, and abate water pollution. The act requires states to adopt water quality standards for its navigable waters, authorizes the preparation of area-wide wastewater management plans (section 208), provides for the planning related to the control of non-point source pollution, and mandates state adoption of numerical standards for priority pollutant toxic chemicals. Section 101 of the 1977 Clean Water Act requires federal agencies to cooperate with state and local agencies to eliminate pollution of waters in the United States.

Water quality protection pursuant to the Clean Water Act has been delegated from the Environmental Protection Agency to the California Water Resources Control Board. The state Water Resources Control Board and nine regional water quality control boards were established by the California Porter-Cologne Water Quality Control Act of 1969. The act authorizes the state board to adopt, review, and revise state water policy and planning processes by the regional water boards. Local implementation of the water quality plan for the Central Valley region is the responsibility of the Central Valley Regional Water Quality Control Board in Rancho Cordova, California. Clean Water Act Section 401 permits are required from the Central Valley Regional Water Quality Control Board to certify that projects meet state and federal water quality standards.

Water quality is regularly monitored by Reclamation, the Sacramento County Department of Environmental Management, and the Sacramento Regional Central Sanitation District, and it is primarily regulated for activities affecting water quality through the issuance of waste discharge (National Pollution Discharge Elimination Permits) permits and other enforceable orders. For more information on water quality plans, criteria and standards, see the discussion of water quality in the Resource Inventory.

Both Reclamation and State Parks must obtain U.S. Army Corps section 404 permits under the Clean Water Act when applicable. A separate permit from the State Regional Water Quality Control Board under section 401 of the Clean Water Act (State 401 Certification) must accompany a section 404 permit to ensure that water quality is maintained. The state regulates the alteration of a lake or stream channel under sections 1600-1606 of the *California Fish and Game Code*. State Parks must obtain CDFG streambed alteration agreements for instream work in state parks. However, streambed alteration permits are not required on federal lands outside of the state parks. Acquiring a streambed alteration agreement does not eliminate the need for a section 404 permit and section 401 certification.

4.4.7.2 Significance Criteria and Evaluation Methodology

Potential significant impacts associated with hydrology and water quality impacts have been evaluated using the following criteria (CEQA Guidelines Sections 15000-15387). The adoption and implementation of the project would have a significant effect on hydrology and water quality if it would:

- WATER-a** Violate any water quality standards or waste discharge requirements;
- WATER-b** Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a deficit in aquifer volume or a lowering of the local groundwater table;
- WATER-c** Substantially alter the existing drainage pattern of the site, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site;
- WATER-d** Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
- WATER-e** Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff;
- WATER-f** Otherwise substantially degrade water quality;
- WATER-g** Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary of Flood Insurance Rate Map or other flood hazard delineation map;
- WATER-h** Place within a 100-year flood hazard area structures which would impede or redirect flood flows;
- WATER -i** Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam;

WATER -j Expose people or structures to inundation by seiche, tsunami, or mudflow.

4.4.7.3 Environmental Evaluation and Mitigation Measures

The environmental consequences associated with implementing the project alternatives (Preferred Alternative, Alternative 3, and Alternative 4) and the No Project Alternative are summarized for Hydrology and Water Quality in Table 7.A. For all alternatives, resource categories and management zones that have an evaluation of “High” effect or “Moderate” effect are more fully described below to present the level of effect. Where necessary, mitigation measures are present to reduce potential impacts.

4.4.7.3.1 Guidelines

The Plan contains specific guidelines (referenced below) that would generally benefit hydrology and water quality by:

- Guideline WATER-1: Protecting watershed and streams within the park by avoiding adverse impacts to streambank and bed morphology, floodplain features, and riparian vegetation.
- Guideline WATER-2: Ensuring that park operations, facilities, and uses avoid or minimize impacts to water quality.
- Guideline WATER-3: Developing a central database for timely input of water quality results from all sampling programs.
- Guideline WATER-4: Expanding regular water quality sampling by adding monitoring stations beyond the three Reclamation stations that are currently monitored in the park. In addition to the current monitoring parameters, consider water quality factors such as possible occurrence of anoxic events in backwater areas, and contamination from adjacent land uses and waterfowl in order to understand the water quality characteristics of Folsom Lake and Lake Natoma.

Table 7.A: HYDROLOGY AND WATER QUALITY IMPACTS EVALUATION

<i>Park-Wide Goals and Guidelines</i>				
Resource	No Project	Preferred Alternative	Alternative 3	Alternative 4
Invasive Exotic Plant Species	No Impact	Moderate	Moderate	Moderate
Vegetation Management	No Impact	No Impact	No Impact	No Impact
Cultural Resource Management	No Impact	Moderate	Moderate	Moderate
Wildlife Management	No Impact	No Impact	No Impact	No Impact
Watershed/Water Quality Management	No Impact	No Impact	No Impact	No Impact
Visual Resources	No Impact	No Impact	No Impact	No Impact
Unitwide Interpretation	Moderate	Moderate	Moderate	Moderate
Visitor Services			see below	
Visitor Capacity			see below	
Park Operations			see below	
<i>Specific Area Goals and Guidelines</i>				
Management Zone	No Project	Preferred Alternative	Alternative 3	Alternative 4
Nimbus Dam	No Impact	No Impact	No Impact	No Impact
Nimbus Flat/Shoals	No Impact	Moderate	Low	Low
Lake Overlook	Low	Moderate	Moderate	Moderate
Mississippi Bar	Low	Moderate	Moderate	Moderate
Negro Bar	Low	Moderate	Moderate	No Impact
Natoma Canyon	No Impact	Low	Low	Low
Folsom Powerhouse	No Impact	Moderate	Moderate	Moderate
Natoma Shore North	Low	No Impact	Low	No Impact
Natoma Shore South	High	High	Moderate	Low
Lower Lake Natoma (AQ)	No Impact	No Impact	No Impact	No Impact
Upper Lake Natoma (AQ)	No Impact	No Impact	No Impact	No Impact
Folsom Dam	No Impact	Moderate	Moderate	Moderate
Beals Point	No Impact	Low	Moderate	Low
Mooney Ridge	High	Low	Low	Low
Granite Bay South	No Impact	Moderate	Moderate	Moderate
Granite Bay North	High	Low	Moderate	Low
Placer Shore	No Impact	Low	Low	Low
Rattlesnake Bar	Moderate	Moderate	Moderate	Low
North Fork Shore	Moderate	High	High	High
Anderson Island	No Impact	No Impact	No Impact	No Impact
Peninsula	High	Moderate	High	Moderate
Darrington	No Impact	Low	Low	Low
Skunk Hollow/Salmon Falls	Low	Low	Low	Low
El Dorado Shore	High	Low	High	Low
Brown's Ravine	High	High	High	High
Mormon Island Cove	Low	Low	High	Low
Mormon Island Preserve	No Impact	No Impact	No Impact	No Impact
Folsom Point	Moderate	Moderate	Moderate	Moderate
Folsom Lake (AQ)	No Impact	No Impact	No Impact	No Impact
Middle North Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Upper North Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Middle South Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Upper South Fork (AQ)	No Impact	No Impact	No Impact	No Impact

Guideline WATER-5: Continuing the weekly bacteriological sampling program, instituted in 2004, at the park's bathing beaches and in other appropriate locations (e.g., Lake Natoma downstream of the City of Folsom Wastewater Treatment Plant outfall and the Folsom State Prison) to insure public health and safety are protected for water contact recreation.

Guideline WATER-6: Designating State Parks and Reclamation personnel to be contacted in the event of a hazardous materials release within the park's watersheds. Coordinate with the local Certified Unified Program Agency, Administering Agency, or Participation Agency (offices of emergency services or environmental health departments of the adjacent counties) to ensure that State Parks contacts be added to the notification list.

Guideline WATER-7: Continuing to support the investigation of mercury and methylmercury levels in water, sediment, fish and other biota conducted by the U.S. Geological Survey and the University of California, Davis. Continue to coordinate with Sacramento County Office of Environmental Health Hazard Assessment (OEHHA) and Cal EPA regarding appropriate advisories for Lake Natoma.

Guideline SUSTAIN-2: *Safeguarding Water:* Conserve water and protect water quality by considering the following guidelines when implementing the Plan:

- Use municipal sewer systems instead of on-site septic sewer systems, to the degree practical.
- Minimize the area of impervious surface, including building footprints and paving.
- Implement measures to minimize the increase in either the rate or volume of stormwater runoff, and improve the quality of runoff.
- Use pervious surfaces in site development, and incorporate features such as vegetated filter strips and bioswales to slow and filter runoff.

- Plant indigenous vegetation and species that are suited to the local environment.
- Use reclaimed water or recycled water for uses such as landscape irrigation, fire protection, toilet flushing, wetlands recharge, and outdoor water features.
- Use water-efficient irrigation design and systems for landscaping.
- Use low-flow water fixtures within buildings.

The Plan also contains specific guidelines that would reduce or eliminate potential adverse impacts associated with flooding by:

- Guideline FLOOD-2: If flood protection projects and measures include the provision of potential use of an additional surcharge space in Folsom Reservoir, work with the Army Corps of Engineers, the Sacramento Area Flood Control Agency and other responsible agencies on the development of a Flood Response Plan for recreation facilities on Folsom Lake. The plan would determine the measures necessary to minimize the risk and potential damage to recreation facilities from short-term inundation that could result from the flood protection projects.
- Guideline FLOOD-3: Implementing the mitigation proposed by the area-specific policies for the management zones potentially affected by the construction and operational impacts of flood control projects on Folsom Lake.
- Guideline FLOOD-4: Developing additional access to Folsom Lake for water levels below 420 feet, as appropriate.
- Guideline FLOOD-5: Working with the Sacramento Area Flood Control Agency to ensure that the agency has completed the recreation-related mitigation for the park required in the EIS/EIR for the Interim Re-Operations Project. Such mitigation included the extension of boat launch ramps to provide access to lower water levels on Folsom Lake.

Guideline FLOOD-6: Considering the implications of locating new recreation facilities below the top of the flood surcharge storage space (currently 474' elevation, could be raised with future flood protection projects) at Folsom Reservoir as such facilities could be inundated in an extreme flood event.

4.4.7.3.2 *Impacts*

Impact WATER-1: Implementation of the Plan alternatives would result in the development of additional recreation, interpretive and administrative facilities that could impact water quality (Significance Criterion WATER-a, WATER-e and WATER-f).

The development of new and expanded recreation, interpretive and administrative facilities associated with Plan implementation could increase impervious surfaces and potentially increase the rate and amount of storm water runoff that may impact park hydrology and water quality.

Construction activities associated with proposed development such as site preparation, surface grading, and new construction could create soil disturbances and increase erosion and sedimentation, potentially resulting in the degradation of the quality of receiving waters. Chemical releases associated with construction activities and equipment operation and maintenance may also result in the degradation of the quality of receiving waters. New facilities and new parking areas within the park would result in increased vehicles use and potential discharge of associated pollutants. Leaks of fuel or lubricants, tire wear, and fallout from exhaust contribute petroleum hydrocarbons, heavy metals, and sediments to the pollutant load in runoff being transported to receiving waters. Runoff from impervious surfaces and proposed landscaped areas may contain residual pesticides and nutrients. In addition, increased water-based recreation and associated water pollution, primarily resulting from chemicals released from motorized water craft recreation, have the potential to degrade water quality in Folsom Lake.

The guidelines described above, in particular SUSTAIN-1 and SUSTAIN-2, would enhance and protect natural landscapes and open space areas after Plan implementation though the limitation of impervious surface areas and the utilization of native vegetation to slow and cleanse storm water flows. Mitigation Measure WATER-1 below addresses water quality impacts resulting from construction.

Mitigation Measure WATER-1: Site specific development projects, management plans, and Specific Project Plans as identified in the Plan shall develop and implement a storm water pollution prevention plan (SWPPP) as necessary and

appropriate to control erosion and sedimentation, both during and after construction, thereby reducing water pollution. If required, such a plan shall include:

- Specific and detailed Best Management Practices (BMPs) designed to mitigate construction-related pollutants and reduce erosion of exposed soil. Specific and detailed BMPs included in the SWPPP shall include practices to minimize the contact of construction materials, equipment, and maintenance supplies (e.g. fuels, lubricants, paints, solvents, adhesives) with storm water. The SWPPP shall specify properly designed centralized storage areas that keep these materials out of the rain. Soils and dust stabilization control measures will be implemented to reduce soil erosion and control dust. If feasible, grading should not be performed during the rainy season. If grading must be conducted during the rainy season, the primary BMPs selected shall focus on erosion control to keep sediment on site.
- A Construction site supervisor, contract manager, contract inspector or another appropriate individual shall be assigned specific responsibility for ensuring BMPs and other conditions are met and monitor results as needed and required.

Impact WATER-2: Implementation of the Plan alternatives would result in an increased number of recreation facilities on Folsom Lake that could be inundated during an extreme flood event (Significance Criterion WATER-h and WATER-i).

The use of Folsom Lake for the purposes of flood control, water supply, power generation, and environmental benefit results in significant annual fluctuations in lake levels. Due to major storm events in 1986 and 1997 that caused record flood flows, various proposals are currently being evaluated to increase Folsom Lake's flood capacity. Implementation of future flood control projects could result in an increased number of recreation facilities that could be inundated during an extreme flood event. It should be noted that a flood event large enough to inundate these facilities has not occurred in the American River watershed in the last 100 years. Impacts for these projects will be analyzed in the environmental documents prepared for the flood control projects.

Specific impacts related to proposed development are described below.

PARK-WIDE GOALS AND GUIDELINES

Invasive Exotic Plant Species

Preferred Alternative, Alternative 3 and Alternative 4: Moderate Impact

Implementation of these alternatives could result in the use of chemical herbicides to

eradicate invasive exotic plant infestations in various areas throughout the park. Herbicides could enter park waterways, potentially impacting water quality. Implementation of Guidelines WATER-2 through WATER-4, described above, would reduce potential impacts to a level below significance. No mitigation measures are required.

Cultural Resource Management

Preferred Alternative, Alternative 3 and Alternative 4: Moderate Impact

Implementation of these alternatives would result in the additional development of interpretive facilities, such as the State Indian Museum and the Negro Bar Cultural Center, at various locations within the park. Impacts related to development of these facilities are addressed by management zone in the Specific Area Goals and Guidelines section below.

Unitwide Interpretation

All Alternatives: Moderate Impact

Implementation of these alternatives would result in the additional development of interpretive facilities, such as the State Indian Museum and the Negro Bar Cultural Center, at various locations within the park. Impacts related to development of these facilities are addressed by management zone in the Specific Area Goals and Guidelines section below.

SPECIFIC AREA GOALS AND GUIDELINES

Nimbus Flat/Shoals

Preferred Alternative and Alternative 4: Moderate Impact

Implementation of the preferred alternative would result in the additional development of a multi-use facility to include flexible classroom and event space, kitchen facilities, storage, administrative area, exhibit area, and other visitor services facilities. Development of these facilities could increase impervious surfaces and potentially increase the rate and amount of storm water runoff that may impact park hydrology and water quality. Due to the developed nature of the site, this impact is considered moderate. Implementation of Guidelines WATER-1 through WATER-4 and Mitigation Measure WATER-1, described above, would reduce potential impacts to a level below significance.

Lake Overlook

Preferred Alternative and Alternative 4: Moderate Impact

Implementation of the preferred alternative would result in the additional

development of day-use facilities, including a vista point/viewing platform, formalized trailheads, interpretive displays, and shade armadas. Development of these facilities could increase impervious surfaces and potentially increase the rate and amount of storm water runoff that may impact park hydrology and water quality. Due to the developed nature of the site, this impact is considered moderate. Implementation of Guidelines WATER-1 through WATER-4 and Mitigation Measure WATER-1, described above, would reduce potential impacts to a level below significance.

Alternative 3: Moderate Impact

Implementation of Alternative 3 would result in construction of a small amphitheater. Development of these facilities could increase impervious surfaces and potentially increase the rate and amount of storm water runoff that may impact park hydrology and water quality. Due to the relatively small size of the proposed facility and the developed nature of the site, this impact is considered moderate. Implementation of Guidelines WATER-1 through WATER-4 and Mitigation Measure WATER-1, described above, would reduce potential impacts to a level below significance.

Mississippi Bar

Preferred Alternative, Alternative 4: Moderate Impact

Implementation of these alternatives would result in the expansion of development at Mississippi Bar to include picnic areas, vehicle access, parking, toilets and drinking water. Development of these facilities could increase impervious surfaces and potentially increase the rate and amount of storm water runoff that may impact park hydrology and water quality. However, as this area has already been developed with the Shadow Glen concession and has previously been disturbed due to historic mining activities, this impact is considered moderate. Implementation of Guidelines WATER-1 through WATER-4 and Mitigation Measure WATER-1, described above, would reduce potential impacts to a level below significance.

Alternative 3: Moderate Impact

Implementation of Alternative 3 would result in the additional development of day-use facilities, including a visitor/nature center, and expansion of the Shadow Glen concession. Development of these facilities could increase impervious surfaces and potentially increase the rate and amount of storm water runoff that may impact park hydrology and water quality. As this management zone has already been developed with the Shadow Glen concession and previously disturbed due to historic mining

activities, this impact is considered moderate. Implementation of Guidelines WATER-1 through WATER-4 and Mitigation Measure WATER-1, described above, would reduce potential impacts to a level below significance.

Negro Bar

Preferred Alternative: Moderate Impact

Implementation of the Preferred Alternative would result in development of the Negro Bar Cultural Center and expansion of interpretive facilities. Development of these facilities could increase impervious surfaces and potentially increase the rate and amount of storm water runoff that may impact park hydrology and water quality. As this area has already been developed with day use facilities, this impact is considered moderate. Implementation of Guidelines WATER-1 through WATER-4 and Mitigation Measure WATER-1, described above, would reduce potential impacts to a level below significance.

Alternative 3: Moderate Impact

Implementation of Alternative 3 would result in expansion of the group camping area, day use beach area, and existing boat ramp and development of a paddling facility/boathouse. Development of these facilities could increase impervious surfaces and potentially increase the rate and amount of storm water runoff that may impact park hydrology and water quality. As this area has already been developed with day use facilities, this impact is considered moderate. Implementation of Guidelines WATER-1 through WATER-4 and Mitigation Measure WATER-1, described above, would reduce potential impacts to a level below significance.

Folsom Powerhouse

Preferred Alternative, Alternative 3 and Alternative 4: Moderate Impact

Implementation of these alternatives would result in the development of a visitor center and expansion of the parking area. Development of these facilities could increase impervious surfaces and potentially increase the rate and amount of storm water runoff that may impact park hydrology and water quality. As this area is already largely developed, this impact is considered moderate. Implementation of Guidelines WATER-1 through WATER-4 and Mitigation Measure WATER-1, described above, would reduce potential impacts to a level below significance.

Natoma Shore South

No Project, Preferred Alternative: High Impact

Implementation of these alternatives would result in the development of the State

Indian Museum. Development of these facilities could increase impervious surfaces and potentially increase the rate and amount of storm water runoff that may impact park hydrology and water quality. Due to the level of development proposed under these alternatives, this impact is considered high. Implementation of Guidelines WATER-1 through WATER-4 and Mitigation Measure WATER-1, described above, would reduce potential impacts to a level below significance. The No Action/No Project Alternative would not implement the guidelines developed for the Plan, but existing State and federal laws would still protect water resources.

Alternative 3: Moderate Impact

Implementation of Alternative 3 would result in the expansion of day use facilities in the Willow Creek area, including development of formalized picnic sites, boat ramp, boat dock and expanded parking area. Development of these facilities could increase impervious surfaces and potentially increase the rate and amount of storm water runoff that may impact park hydrology and water quality. As this area is already largely developed, this impact is considered moderate. Implementation of Guidelines WATER-1 through WATER-4 and Mitigation Measure WATER-1, described above, would reduce potential impacts to a level below significance.

Folsom Dam

Preferred Alternative, Alternative 3, and Alternative 4: Moderate Impact

Implementation of these alternatives would result in the development of a consolidated administrative complex, including offices, a visitor center, and the American River Water Education Center. Development of these facilities could increase impervious surfaces and potentially increase the rate and amount of storm water runoff that may impact park hydrology and water quality. As this area has already been developed with Folsom Dam, this impact is considered moderate. Implementation of Guidelines WATER-1 through WATER-4 and Mitigation Measure WATER-1, described above, would reduce potential impacts to a level below significance.

Beal's Point

Alternative 3: Moderate Impact

The reconfiguration of the campground area and the expansion of the boat ramp has the potential to increase visitation to the Beal's Point management zone, thereby increasing the exposure of people and structures to the risks of flooding. As this area has already been significantly developed and is heavily visited, this impact is considered moderate. Implementation of Guidelines FLOOD-2 through FLOOD-6,

listed above, would reduce potential impacts to a level below significance. No mitigation measures are required.

Mooney Ridge

No Project: High Impact

Implementation of this alternative would result in the development of a 200-slip marina with snack bar, boating equipment rental, ferry terminal, 250 parking spaces, operations dock/office, and restrooms. Development of these facilities could increase impervious surfaces and potentially increase the rate and amount of storm water runoff that may impact park hydrology and water quality. Proposed development would also increase the extent of recreation facilities that could be inundated during a flood event. As this management zone is largely undeveloped, the significant increase in development proposed under the No Project Alternative is considered a high impact. The No Action/No Project Alternative would not implement the guidelines developed for the Plan, but existing State and federal laws would still protect water resources.

Granite Bay South

Preferred Alternative, Alternative 3, Alternative 4: Moderate Impact

Implementation of the Preferred Alternative, Alternative 3, and Alternative 4 would result in the reconfiguration of the vehicle entrance, boat launch complex, and main beach parking area; expansion of the Activity Center; and development of additional facilities including a lifeguard tower and dry dock storage facility that could impact water quality. Development of these facilities could increase impervious surfaces and potentially increase the rate and amount of storm water runoff that may impact park hydrology and water quality. Proposed development would also increase the extent of recreation facilities that could be inundated during a flood event. As this area has already been significantly developed and is heavily visited, this impact is considered moderate. Implementation of Guidelines WATER-1 through WATER-4, FLOOD-2 through FLOOD-6, and Mitigation Measure WATER-1, described above, would reduce potential impacts to a level below significance.

Granite Bay North

No Project: High Impact

Implementation of this alternative would result in the addition of 250 parking spaces, paved roads, and paved access to just below the high water mark. Development of these facilities could increase impervious surfaces and potentially increase the rate and amount of storm water runoff that may impact park hydrology

and water quality. Additional development has the potential to increase visitation to this management zone, thereby increasing the exposure of people and structures to the risks of flooding. As this management zone remains largely undeveloped, the significant increase in the level of development proposed under the No Action Alternative would be considered a high impact. The No Action/No Project Alternative would not implement the guidelines developed for the Plan, but existing State and federal laws would still protect water resources.

Alternative 3: Moderate Impact

Implementation of Alternative 3 would result in the addition of a formal beach at Oak Point with parking for approximately 100 vehicles and the expansion of the equestrian staging area. Development of these facilities could increase impervious surfaces and potentially increase the rate and amount of storm water runoff that may impact park hydrology and water quality. Additional development has the potential to increase visitation to this management zone, thereby increasing the exposure of people and structures to the risks of flooding. Although this management zone remains largely undeveloped, the increase in the level of development proposed under Alternative 3 would be considered a moderate impact. Implementation of Guidelines WATER-1 through WATER-4, FLOOD-2 through FLOOD-6, and Mitigation Measure WATER-1, described above, would reduce potential impacts to a level below significance.

Rattlesnake Bar

No Project: Moderate Impact

Implementation of the No Project Alternative would result in additional development of 100 picnic tables, trail camp, staff residence, and floating restroom and upgrades to the equestrian staging area. Development of these facilities could increase impervious surfaces and potentially increase the rate and amount of storm water runoff that may impact park hydrology and water quality. Additional development would also increase the extent of recreation facilities that could be inundated during a flood event. Although this management zone has been minimally developed, the increase in the level of development proposed under this alternative would be considered a moderate impact. The No Action/No Project Alternative would not implement the guidelines developed for the Plan, but existing State and federal laws would still protect water resources.

Preferred Alternative: Moderate Impact

Implementation of the Preferred Alternative would result in additional development

of picnic facilities, including group picnic areas with shade armadas, vault toilets, and landscaping and the potential development of additional staff housing. Development of these facilities could increase impervious surfaces and potentially increase the rate and amount of storm water runoff that may impact park hydrology and water quality. Additional development would also increase the extent of recreation facilities that could be inundated during a flood event. Although this management zone has been minimally developed, the increase in the level of development proposed under this alternative would be considered a moderate impact. Implementation of Guidelines WATER-1 through WATER-4 and Mitigation Measure WATER-1, described above, would reduce potential impacts to a level below significance.

Alternative 3: Moderate Impact

Implementation of Alternative 3 would result in development and expansion of day use facilities including extension and widening of the boat ramp, additional parking, improvement of the access road, addition of 50-100 picnic sites, and improvement of trailhead facilities. Development of these facilities could increase impervious surfaces and potentially increase the rate and amount of storm water runoff that may impact park hydrology and water quality. Additional development would also increase the extent of recreation facilities that could be inundated during a flood event. Although this management zone has been minimally developed, the increase in the level of development proposed under this alternative would be considered a moderate impact. Implementation of Guidelines WATER-1 through WATER-4 and Mitigation Measure WATER-1, described above, would reduce potential impacts to a level below significance.

North Fork Shore

No Project: Moderate Impact

Implementation of the No Project Alternative would result in addition of a car-top launch and small parking area at Old Rattlesnake Road, and the conversion of the existing day-use boat-in sites to boat-in campsites and a boarding float. Development of these facilities could increase impervious surfaces and potentially increase the rate and amount of storm water runoff that may impact park hydrology and water quality. Additional development would also increase the extent of recreation facilities that could be inundated during a flood event. Additional development has the potential to increase visitation to this management zone, thereby increasing the exposure of people and structures to the risks of flooding. Although this zone has been minimally developed, this is considered a moderate impact. The No Action/No

Project Alternative would not implement the guidelines developed for the Plan, but existing State and federal laws would still protect water resources.

Preferred Alternative and Alternative 4: High Impact

The construction of the North Fork Trail bridge, accommodation of the Auburn-to-Cool Trail bridge, and placement of a new trail to connect either of these bridges to the Peninsula have the potential to impact water quality. Construction of trail bridges could result in construction activities taking place within and/or adjacent to stream corridors resulting in a high impact due to the potential for sediments and other contaminants to enter park waterways. Additional development would also increase the extent of recreation facilities that could be inundated during a flood event. Implementation of Guidelines WATER-1 through WATER-4, FLOOD-2 through FLOOD-6, and Mitigation Measure WATER-1, described above, would reduce potential impacts to a level below significance.

Alternative 3: Moderate Impact

In addition to the recreation facilities proposed in the Preferred Alternative, Alternative 3 also proposes the development of a boat-in campground at Wild Goose Flat. Development of these facilities could increase impervious surfaces and potentially increase the rate and amount of storm water runoff that may impact park hydrology and water quality. Additional development would also increase the extent of recreation facilities that could be inundated during a flood event. Although this zone has been minimally developed, this is considered a moderate impact. Implementation of Guidelines WATER-1 through WATER-4, FLOOD-2 through FLOOD-6, and Mitigation Measure WATER-1, described above, would reduce potential impacts to a level below significance.

Peninsula

No Project: High Impact

Implementation of this alternative would result in the additional development of shower facilities, RV sanitary station, 200 picnic sites and beach, loop trail, trail staging area and trail camp. Development of these facilities could increase impervious surfaces and potentially increase the rate and amount of storm water runoff that may impact park hydrology and water quality. Additional development would also increase the extent of recreation facilities that could be inundated during a flood event. Although this area has already been developed with campground and day-use facilities, the level of development proposed under this alternative is considered a high impact. The No Action/No Project Alternative would not implement the

guidelines developed for the Plan, but existing State and federal laws would still protect water resources.

Preferred Alternative and Alternative 4: Moderate Impact

Implementation of these alternatives would result in the additional development of 50 campsites and trailhead facilities. Development of these facilities could increase impervious surfaces and potentially increase the rate and amount of storm water runoff that may impact park hydrology and water quality. Additional development would also increase the extent of recreation facilities that could be inundated during a flood event. As this area has already been developed with campground and day-use facilities, this impact is considered moderate. Implementation of Guidelines WATER-1 through WATER-4, FLOOD-2 through FLOOD-6, and Mitigation Measure WATER-1, described above, would reduce potential impacts to a level below significance.

Alternative 3: High Impact

Implementation of Alternative 3 would result in the additional development of 100-200 campsites and marina. Development of these facilities could increase impervious surfaces and potentially increase the rate and amount of storm water runoff that may impact park hydrology and water quality. Additional development would also increase the extent of recreation facilities that could be inundated during a flood event. Although this area has already been developed with campground and day-use facilities, the level of development proposed under Alternative 3 is considered a high impact. Implementation of Guidelines WATER-1 through WATER-4, FLOOD-2 through FLOOD-6, and Mitigation Measure WATER-1, described above, would reduce potential impacts to a level below significance.

El Dorado Shore

No Project Alternative: High Impact

Implementation of this alternative would result in the development of 80 campsites, RV sanitary station, boat dock, boat camping, swim beach with restrooms and trail staging area in the vicinity of New York Creek/Monte Vista. Development of these facilities could increase impervious surfaces and potentially increase the rate and amount of storm water runoff that may impact park hydrology and water quality. Additional development would also increase the extent of recreation facilities that could be inundated during a flood event. Although this area was previously developed as a campground, it has been out of use for some time. The level of development proposed under the No Action Alternative would be considered a high

impact. The No Action/No Project Alternative would not implement the guidelines developed for the Plan, but existing State and federal laws would still protect water resources.

Alternative 3: High Impact

Implementation of Alternative 3 would result in the development of paved formalized parking areas at Sweetwater Creek, a major trailhead and staging facility at Falcon Crest and day use facilities in the vicinity of the former Monte Vista campground. Development of these facilities could increase impervious surfaces and potentially increase the rate and amount of storm water runoff that may impact park hydrology and water quality. Additional development would also increase the extent of recreation facilities that could be inundated during a flood event. Although this area was previously developed as a campground, it has been out of use for some time. The level of development proposed under the No Action Alternative would be considered a high impact. Implementation of Guidelines WATER-1 through WATER-4, FLOOD-2 through FLOOD-6, and Mitigation Measure WATER-1, described above, would reduce potential impacts to a level below significance.

Brown's Ravine

No Project: High Impact

Implementation of the No Project Alternative would result in the development of additional facilities to include dry boat storage and repair building, 100 additional boat slips, and office/storage building for lake patrol. Development of these facilities could increase impervious surfaces and potentially increase the rate and amount of storm water runoff that may impact park hydrology and water quality. Additional development would also increase the extent of recreation facilities that could be inundated during a flood event. Although this zone is largely developed with marina-related facilities, the level of development proposed is considered a high impact. The No Action/No Project Alternative would not implement the guidelines developed for the Plan, but existing State and federal laws would still protect water resources.

Preferred Alternative, Alternative 4: High Impact

Implementation of these alternatives would result in development of additional facilities to include additional boat slips and a multi-use facility. It would also entail extension of the existing dock system, reconfiguration of the marina and Hobie Cove boat ramps and upgrade of the storm water system. Development of these facilities could increase impervious surfaces and potentially increase the rate and amount of storm water runoff that may impact park hydrology and water quality. Additional

development would also increase the extent of recreation facilities that could be inundated during a flood event. Although this zone is largely developed with marina-related facilities, the level of development proposed is considered a potentially significant impact. Management direction for this zone, including upgrading the storm water system (Guideline BROWNS-9) and assessing Best Management Practices for storm water management (Guideline BROWNS-10), would improve water quality by reducing sediment loads from adjacent residential development. Implementation of Guidelines WATER-1 through WATER-4, FLOOD-2 through FLOOD-6, and Mitigation Measure WATER-1, described above, would reduce potential impacts to a level below significance.

Alternative 3: High Impact

Under this alternative, Brown's Ravine Marina would be expanded into Mormon Island Cove resulting in high impacts. See "Mormon Island Cove" below.

Mormon Island Cove

Alternative 3: High Impact

Implementation of this alternative would result in the expansion of Brown's Ravine Marina into this zone, including roads, parking areas, boat ramps, slips, dry storage and other facilities. Development of these facilities could increase impervious surfaces and potentially increase the rate and amount of storm water runoff that may impact park hydrology and water quality. Additional development would also increase the extent of recreation facilities that could be inundated during a flood event. The level of development proposed under Alternative 3 would be considered a high impact. Implementation of Guidelines WATER-1 through WATER-4, FLOOD-2 through FLOOD-6, and Mitigation Measure WATER-1, described above, would reduce potential impacts to a level below significance.

Folsom Point

No Project: Moderate Impact

A new visitor/orientation center that may include a restaurant is proposed at Observation Point. Development of these facilities could increase impervious surfaces and potentially increase the rate and amount of storm water runoff that may impact park hydrology and water quality. Depending upon whether future flood control projects are implemented, certain recreation facilities may be located below the maximum flood elevation of the reservoir. Therefore, additional development could increase the extent of recreation facilities that could be inundated during a flood event. As this area has previously been developed with the Folsom Dam and

associated ancillary structures, the level of development proposed under all alternatives would be considered a moderate impact. The No Action/No Project Alternative would not implement the guidelines developed for the Plan, but existing State and federal laws would still protect water resources.

Preferred Alternative, Alternative 4: Moderate Impact

Implementation of these alternatives would result in the additional development of a multi-use facility at Folsom Point as well as reconfiguration of the picnic area and the boat ramp, expansion of the parking area, and provision of restrooms and drinking water. It would also entail the development of a trailhead at Dike 7, a Class I bike path to Mormon Island Cove, and a Class I bike path across the canyon on the new Folsom Dam Road. Development of these facilities could increase impervious surfaces and potentially increase the rate and amount of storm water runoff that may impact park hydrology and water quality. Depending upon whether future flood control projects are implemented, certain recreation facilities may be located below the maximum flood elevation of the reservoir. Therefore, additional development could increase the extent of recreation facilities that could be inundated during a flood event. As this area has previously been developed, the level of development proposed under all alternatives would be considered a moderate impact. Implementation of Guidelines WATER-1 through WATER-4, FLOOD-2 through FLOOD-6, and Mitigation Measure WATER-1, described above, would reduce potential impacts to a level below significance.

Alternative 3: Moderate Impact

Implementation of Alternative 3 would result in the additional development of a multi-use facility at Folsom Point as well as expansion of boat ramp parking and development of a formal beach area. Like the Preferred Alternative and Alternative 4, it would also entail the development of a trailhead at Dike 7, a Class I bike path to Mormon Island Cove, and a Class I bike path across the canyon on the new Folsom Dam Road. Development of these facilities could increase impervious surfaces and potentially increase the rate and amount of storm water runoff that may impact park hydrology and water quality. Depending upon whether future flood control projects are implemented, certain recreation facilities may be located below the maximum flood elevation of the reservoir. Therefore, additional development could increase the extent of recreation facilities that could be inundated during a flood event. As this area has previously been developed, the level of development proposed under Alternative 3 would be considered a moderate impact. Implementation of Guidelines WATER-1 through WATER-4, FLOOD-2 through FLOOD-6, and Mitigation

Measure WATER-1, described above, would reduce potential impacts to a level below significance.

Implementation of the above listed guidelines and mitigation measures would reduce impacts affecting hydrology and water quality to less than significant levels. Consequently, the conditions included in the Significance Criteria (WATER-a through WATER-j) have been addressed.

4.4.8 Land Use

4.4.8.1 Affected Environment

4.4.8.1.1 *Setting*

The Folsom Lake State Recreation Area (the Unit) includes approximately 19,800 acres of water and land. The Unit straddles three County jurisdictions (El Dorado in the east, Placer in the west, and Sacramento in the south) and the City of Folsom within the greater Sacramento Region. According to the U.S. Census, the 2000 regional population was 1.94 million, and the Sacramento Area Council of Governments (SACOG) projects the region will see a 49 percent (928,000) increase in residents and a 60 percent (510,000) increase in jobs by 2020. As the region continues to accommodate significant growth, development surrounding the Unit will also continue.

RECREATION LAND USE IN THE UNIT

For the most part, land uses within the Unit are recreation related and reflect a range of activity and development intensity. However, the very existence of the Unit is the result of the Central Valley Project, which dammed the American River and created Folsom Lake and Lake Natoma for the purposes of flood control, water supply, and power generation. Operation of the lakes for these purposes has a direct affect on recreational uses in the Unit and the involvement of several State, federal, and local agencies results in a complex regulatory context. Non-recreation land use in the Unit is described in the following section.

The recreation areas on both Folsom Lake and Lake Natoma provide for a wide range of activities, with most areas accommodating multiple park users. These areas represent discrete recreation centers with, in most cases, several miles of undeveloped shoreline separating each area. Primary visitor areas are the most developed and provide a wide range of visitor services and easy access on major routes from adjacent to urban centers. On Folsom Lake, Granite Bay and Beal's Point in Placer County are the main day-use areas on the western shoreline with swim beaches, picnic areas, and boat launch facilities. On the eastern shoreline in El Dorado County, Folsom Point and Brown's Ravine provide boat launch, marina, and picnic facilities. These areas are the most popular in the Unit and account for almost 60 percent of total visits in 2000. Secondary visitor areas on Folsom Lake include Rattlesnake Bar, Salmon Falls/Skunk Hollow, Old Salmon Falls, and the Peninsula. These facilities tend to be less formally developed and cater to a more narrow range of park users. Other facilities on Folsom Lake include the Park Headquarters compound—which includes the Gold Fields District office of State Parks, the Central California Area Office of Reclamation, and the

American River Water Education Center—Observation Point, and Mormon Island Wetland Preserve.

As with the recreation areas on Folsom Lake, those on Lake Natoma accommodate multiple park users, although in a setting that is much less intense with quiet and sheltered waters making it an ideal location for paddling and rowing, swimming, and fishing. Primary visitor areas include Negro Bar and Nimbus Flat, day-use areas offering a full range of facilities including swim beaches, picnic areas, group campground, boat launches, personal watercraft dock, and an equestrian staging area. Secondary visitor areas include Willow Creek, Lake Overlook, and Mississippi Bar. Willow Creek is a popular fishing, canoeing, picnicking, bird watching, and trailhead location. Lake Overlook, located high above the north end of Nimbus Dam off Hazel Avenue, offers sweeping views of Lake Natoma, the Sierra Foothills, and the Sacramento Valley from a paved parking area. Mississippi Bar is a sprawling area of undeveloped land along the western shoreline of the lake between Lake Overlook and Negro Bar. It is comprised of dredge tailings resulting from gold exploration and aggregate mining as well as several lagoons and ponds that are accessible by canoe or kayak from Lake Natoma. Other facilities include the California State University Sacramento (CSUS) Aquatic Center. The Aquatic Center provides the base for the CSUS water ski and rowing teams and a full range of boating and water safety courses available to the public. Facilities here include an administrative building with offices and classrooms, several equipment storage buildings, three launch docks with mooring areas, a small beach area, and a large paved parking area with access off Hazel Avenue. The Folsom Powerhouse State Historic Park, a separate designated park unit which is administered by the Gold Fields District, is one of the oldest hydroelectric facilities in the world and is listed on the National Register of Historic Places. The facility includes the main powerhouse, associated buildings, and a small parking area. Planned improvements to the facility include a new visitor center and larger parking area with room for buses. Management direction for the Folsom Powerhouse is included in the Plan.

NON-RECREATION LAND USE IN THE UNIT

The damming of the American River at Folsom in 1956, part of the massive Central Valley Project, resulted in the creation of Folsom Lake and Lake Natoma behind the Folsom and Nimbus Dams. The primary non-recreation land uses within the Unit, these dams operate both lakes for the purposes of flood control, water supply, and power generation. As a result, recreation use in the Unit is closely related to the function of Folsom Lake as a reservoir since water levels directly affect the availability of boat ramps, beaches, mooring sites, and other facilities that depend largely on water depth or surface area. A number of past flood protection and water supply projects and proposed future projects have an will continue to

affect the operation of Folsom Dam and water levels on the reservoir, including the Folsom Reservoir Re-operation, the Joint Federal Project and increased water diversions by various entities as outlined in the Water Forum Agreement. The Water Forum Agreement provides for increased surface water diversions to meet planned growth in the area through 2030 and to ensure that customer demand can be met in dry years. Increased diversions would result in lower water levels on Folsom Lake and directly affect boating and swimming opportunities in the Unit.

LAND USE SURROUNDING THE UNIT

As noted, the Unit straddles three County jurisdictions and the City of Folsom. The northwestern portion of the Unit is located within unincorporated Placer County. In general, land uses in the County that abut the Unit decrease in intensity from south to north. Moving north from the Sacramento County line, urban residential development closes in on Unit lands and puts competing uses in close proximity. This is particularly true at Granite Bay, where high density residential development in the County abuts the Unit. Recent large-scale development projects in the City of Folsom, such as the master-planned Parkway and Empire Ranch communities, also encroach on the Unit. North of Granite Bay, residential densities thin out and the character of development is more rural than urban. Most of the lands in the County that provide views of Folsom Lake have been developed, particularly in the Lakeshore area on the ridge above the western shoreline of the North Fork of the American River between Granite Bay and Horseshoe Bar.

The northeastern portion of the Unit is located within unincorporated El Dorado County. As in Placer County across Folsom Lake to the west, the lands that abut the Unit are in urban and rural residential development with densities decreasing from south to north. The most concentrated urban residential development abuts the Folsom Lake Marina at Brown's Ravine and extends from Unit lands northeast to New York Creek. Although residential development begins to thin out, it continues a significant distance out Salmon Falls Road to the South Fork crossing at Skunk Hollow. In the Peninsula area, the lands abutting the Unit are largely undeveloped and consist of oak-studded hillsides suitable for grazing. However, this area has been zoned by the County for a mix of rural residential development and open space.

The southern half of the Unit—from the southern end of Folsom Lake and south to Lake Natoma and Nimbus Dam—is located in Sacramento County. Unincorporated Sacramento County abuts the Unit south of the Madison Avenue/Greenback Lane in Orangevale on the west side of Lake Natoma and south of the Folsom Avenue/Highway 50 in Rancho Cordova on the east side. In Orangevale, residential development abuts the Unit from Negro Bar and

the Lake Natoma Bluffs south along Mississippi Bar to Lake Overlook above Nimbus Dam. In Rancho Cordova, Highway 50 south of Folsom Boulevard separates the Unit from highway commercial and industrial uses that extend along this route to the Hazel Avenue interchange at Nimbus Flat. The majority of the southern half of the Unit is located in the City of Folsom. On the western side of the American River, the City extends south from the Placer County line to the intersection of Madison Avenue and Greenback Lane at Negro Bar. On the eastern side of the River, the City extends south from the El Dorado County line to the Highway 50/Folsom Boulevard interchange at Museum Flat. With the exception of commercial development at the intersections of Folsom-Auburn Road/Greenback Lane and Madison Avenue/Greenback Lane, the lands that abut the Unit along the western side of the American River are predominantly composed of single family residential development with multi-family units to a lesser extent. Commercial and industrial land uses and development abut the Unit lands along its eastern boundary in the City. For instance, the 1,200-acre Folsom State Prison and California State Prison, Sacramento site is located immediately south of Folsom Dam, and the Unit abuts historic downtown Folsom along Leidesdorff and Riley streets. South of downtown, Folsom Boulevard serves, for the most part, as a boundary and buffer between the Unit and urban development.

UNIT INTERFACE WITH SURROUNDING LANDS

The interface of the Unit with the surrounding lands raises several complex issues, most of which relate to the proximity of urban and rural development to the Unit. Currently, single family residential is the predominant land use abutting the Unit, a situation that is not expected to change in the long term. With the exception of recreation, open space, and agricultural uses, single family residential is the most compatible use at the Unit interface. And although some areas of commercial development abut the Unit in the City of Folsom, the intensity of these uses is such that compatibility is not a significant concern. As noted in the Scenic Resource section, the visual intrusion of development is directly related to the proximity of development to the Unit. Visual intrusion occurs when park users can see outside development from within the Unit, and while some park users may not seek solitude from the outside world in their recreational pursuits, those who do must travel to the far undeveloped reaches of the Unit. Visual intrusion in the Unit occurs at Nimbus Flat, Lake Overlook, Beal's Point, Mormon Island Dam, Brown's Ravine, New York Creek, and Old Salmon Falls.

The proximity of development to the natural areas of the Unit raises the issue of wildfire safety, particularly in the northern portions of the Unit along the North and South Forks of the American River. In these more remote rural areas of unincorporated Placer and El

Dorado counties, emergency response times are higher, and the natural landscape within the Unit poses the highest risk of wildfires.

4.4.8.1.2 Regulatory Considerations

Non-recreation land uses within the Unit are associated with Folsom and Nimbus Dams. The ACOE completed the construction of these dams in 1956, and Folsom Lake and Lake Natoma were created as a result. The dams and lakes were designed as part of the Central Valley Project, a network of dams, reservoirs, canals, powerplants, and pumping plants extending over 500 miles south from the Cascade Mountains and 100 miles west from the Sierra Foothills to the Coastal Range. Reclamation owns the majority of the lands within the Unit and is responsible for the operation of these facilities and water management. Shortly after construction of the dams, State Parks entered into an agreement with Reclamation to build and manage recreation facilities on its lands at Folsom Lake and Lake Natoma. The area was subsequently designated as Folsom Lake State Recreation Area and the first facilities opened to the public in 1958.

Although the primary function of Folsom Dam is flood control, the reservoir stores water for irrigation and domestic use and for electrical power generation. The dam also plays a role in the preservation of the American River fishery and the downstream control of salt water intrusion in the Sacramento-San Joaquin Delta. Nimbus Dam is located 7 miles downstream from Folsom Dam. Nimbus Dam represents the afterbay structure for Folsom Dam – the afterbay being Lake Natoma. The dam is designed to re-regulate flows into the American River and to generate electricity from water releases. The various uses of water in the system, and the allocation of quantities, is carefully orchestrated and managed by the Reclamation. The Reclamation develops and manages contracts for water supply.

Several water agencies and entities hold entitlements to water from the American River, including the San Juan Water District (SJWD), Sacramento Municipal Utility District (SMUD), East Bay Municipal Utility District (EBMUD), Folsom Prison, City of Roseville, and the El Dorado Irrigation District (EID). Some of these entities – such as the SJWD and EID – have pumping and treatment facilities on Reclamation lands. The Reclamation also manages multiple agricultural water contracts.

Western Area Power Administration (WAPA) manages the power generated from the turbines at Folsom and Nimbus Dams. They also control and manage the power lines connected to these power generation facilities which run across the SRA.

The ACOE, Sacramento Area Flood Control Agency (SAFCA), and the California State Reclamation Board coordinate with Reclamation on flood control projects. SAFCA was formed in 1989 to address the Sacramento area's vulnerability to catastrophic flooding. Under the Sacramento Area Flood Control Agency Act of 1990, the California Legislature has given SAFCA broad authority to finance flood control projects and has directed the Agency to carry out its flood control responsibilities in ways that provide optimum protection to the natural environment. Established by the California Legislature to coordinate flood control on a regional basis, SAFCA is a "joint powers agency" consisting of the City of Sacramento, County of Sacramento, County of Sutter, American River Flood Control District, and Reclamation District (RD) 1000. The California State Reclamation Board cooperates with the ACOE and other various agencies of the federal, State, and local governments in maintaining, planning, constructing, operating, and maintaining flood control works along the Sacramento and San Joaquin Rivers and their tributaries.

Wildlife management agencies, including the CDFG, USFWS, and NOAA Fisheries are involved in the management of water from Folsom Lake for downstream fisheries, particularly listed salmonids. CDFG manages the fish hatchery through an agreement with Reclamation. The construction of a naturalized fish passage across Nimbus Shoals, and removal of the existing in-stream diversion structure, is a project of the Reclamation and the CDFG.

In 2002, CALFED, a consortium of State and federal agencies with management and regulatory responsibilities in the Sacramento-San Joaquin Bay-Delta, authorized an Environmental Water Account (EWA). The EWA primarily focuses on resolving the fishery and water supply diversion conflict at the Central Valley Project (CVP) and State Water Project (SWP) export pumps. Recent fluctuations in these diversions have adversely affected water supply reliability due to conflicts with fishery needs. The proposed project is located in Sacramento, Placer, and El Dorado Counties and involves the extraction of groundwater in Sacramento County north of the American River and approximately 10,000 acre-feet of surface water diversions from Folsom Lake and the lower American River. Reclamation will release the surface water from Folsom Lake in accordance with a schedule designed to meet downstream EWA objectives.

Fire prevention and protection services within the Unit are administered by the Reclamation for federal lands outside the area of responsibility of local fire agencies, and the California Department of Fire and Forestry (CDF) for State lands. A contractual agreement between Reclamation and CDF grants Reclamation responsibility for fire prevention on federal lands

within the Unit. State Parks owns a small pumper truck that is stationed at the Peninsula for use in wildfire emergencies.

Recreation use in the Unit is closely related to the function of Folsom Lake as a reservoir since water levels directly affect the availability of boat ramps, beaches, mooring sites, and other facilities that depend largely on water depth or surface area. These levels can vary greatly, although much less so on Lake Natoma. There are several projects and proposals in the works that will affect the operation of Folsom Dam and water levels on the reservoir. They are described below.

WATER FORUM AGREEMENT

The Water Forum Agreement (WFA) comprises a diverse group of stakeholders representing water-related interests in the cities of Sacramento, Folsom, Galt, Citrus Heights and Roseville, the County of Sacramento, South Placer County, and western El Dorado County. The objectives of the WFA are to provide a reliable and safe water supply for the region's economic health and planned development through the year 2030 and to preserve the fishery, wildlife, recreational, and aesthetic values of the Lower American River. The planning process resulted in a comprehensive Water Forum Agreement approved by Water Forum members in 1999.

The WFA provides for increased surface water diversions to meet planned growth in the area through 2030 and assurances that customer demand may be met in dry years. The WFA study provided analysis regarding recreation impacts and the document recognized that, compared to current conditions, the increased diversions and other demands on the reservoir would result in lower water levels on Folsom Lake and directly affect boating and swimming opportunities in the Unit. The lower lake levels would reduce the availability of boat ramps, marina slips, and beaches. Recreation uses on Lake Natoma would not be affected. The WFA proposes several measures to mitigate the impacts on recreation uses in the Unit, including providing funding for the construction of recreation facilities and improvements to mitigate the impacts to recreation from lower lake levels. The WFA has no legal binding and will be implemented through the actions of the various stakeholders that participated in the agreement.

FLOOD PROTECTION PROJECTS

In February 1986, a series of winter storms caused record floodflows in the American River basin. Outflows from Folsom Lake combined with high flows on the Sacramento River resulted in water levels reaching the safety capacity of the levees that protect metropolitan Sacramento. In January 1997, storm events created the largest precipitation peaks ever

recorded on the American and Sacramento rivers. These events raised significant concern over the adequacy of the existing flood control system and led to a series of investigations by the U.S. Army Corps of Engineers (ACOE), the State Reclamation Board, and the Sacramento Area Flood Control Agency (SAFCA) into the need for improved flood protection for the Sacramento area. Several proposals put forward by the agencies were authorized by U.S. Congress, including the Folsom Dam Modification Project in 1999, the Long Term Study of the American River Watershed (Folsom Dam Mini-Raise) completed in 2002 and most recently the ongoing Folsom Dam Safety and Flood Damage Reduction Joint Federal Project.

FOLSOM DAM MODIFICATIONS

This project was intended to reduce the probability of flooding in Sacramento in any year from 1 chance in 85 to 1 chance in 140. The first phase of the project would involve enlarging the eight existing river outlets at Folsom Dam to permit increased release capacity. In addition to the outlet modifications, the Army Corps will modify the use of surcharge storage in Folsom Lake—using both operational and physical means—to allow non-damaging releases to occur at Folsom Dam while allowing water levels in Folsom Lake to reach up to 474 feet. Changes to existing emergency release operations would reflect the new flood surcharge elevation of 474 feet for releases. However, in early 2005 it became apparent that plans to enlarge the outlets in Folsom Dam were more difficult, riskier and much more costly than previously projected. Plans to enlarge the outlets have been set aside and new flood protection measures are currently being analyzed in the Folsom Dam Safety and Flood Damage Reduction Joint Federal Project (see below).

LONG TERM STUDY/FOLSOM DAM MINI-RAISE PROJECT

In addition to the Folsom Dam Modification Project, the ACOE, SAFCA and other flood control agencies have proposed to raise Folsom Dam by seven feet and increase the maximum flood pool water elevation from 474 feet to 482 feet. The effect would be the addition of 95,000 acre-feet of storage capacity to Folsom Lake and in combination with the other flood protection measures would increase the flood protection in Sacramento to above the 200-year level.

Significant impacts on recreation uses in the Unit were anticipated as a result of the construction activities associated with the dam raise project. Operation impacts of the dam raise included the potential inundation of most of the recreation facilities and a substantial amount of native vegetation and habitat around Folsom Reservoir if the additional flood storage capacity were utilized during an extreme flood event. The EIS/EIR for the Mini-raise asserted that the operational effects of the project would be less than significant because the

risk of flood occurrence is low and the inundation period would be brief and would likely occur during the winter months when most vegetation is dormant.

As previously noted, due to the problems with enlarging the outlets of Folsom Dam, additional flood protection measures, including both the Folsom Dam Modifications and Mini-Raise proposals, are being re-thought and re-analyzed in the ongoing Folsom Dam Safety and Flood Damage Reduction Joint Federal Project. (See below.)

FOLSOM DAM BRIDGE

One aspect of the Folsom Dam Mini-Raise Project which is moving forward independently is the construction of a new Folsom Dam Bridge. The original proposals to raise Folsom Dam included a provision to construct a temporary bridge across the canyon below the Dam to accommodate the traffic that would be displaced from the Folsom Dam Road. A federal authorization in 2004 approved construction of a permanent bridge. The ACOE and the City of Folsom are moving forward with a joint project to construct a permanent bridge across the canyon below Folsom Dam.

A Final EIS/EIR for this project was completed in 2006. The alignment of the new bridge and roadway would be from near the current alignment of Folsom Dam Road at Observation Point at the southern end to a new intersection with Folsom-Auburn Road just south of the current intersection with Folsom Dam Road. The Folsom Dam Bridge project will require the re-alignment of portions of the paved bike path between Lake Natoma and Beal's Point and will relocate the entrance road into the Reclamation and State Parks administrative facilities. The new bridge is currently under construction and the project is anticipated to be completed in 2009.

In separate actions and decisions from the bridge project, Folsom Dam Road has been closed to public use. In 2003, as a result of security concerns raised following the attacks of September 11, 2001, Folsom Dam Road was closed indefinitely to public use. Reclamation analyzed the permanent future of Folsom Dam Road in an EIS that was finalized in 2005.

FOLSOM DAM SAFETY AND FLOOD DAMAGE REDUCTION JOINT FEDERAL PROJECT

Challenges with enlarging the outlets at Folsom Dam resulted in changes to both the Folsom Dam Modifications and the Folsom Dam Mini-Raise Projects. Concurrent to the development of these recent proposals to increase flood protection at Folsom Dam and Reservoir, Reclamation has been investigating their needs to strengthen the existing earthen dams and dikes around the reservoir due to hydrologic, seismic and seepage concerns. In the

fall of 2005, the ACOE and Reclamation combined forces to work on the Folsom Dam Safety and Flood Damage Reduction Joint Federal Project to improve both dam safety and flood control. A new gated auxiliary spillway around Folsom Dam is the central piece of the flood protection measures (in lieu of enlarging the outlets) in this new joint federal project. This new spillway would run from Observation Point on the south side of the left wing dam down to the river below the existing spillways and outlets. The Folsom Dam Safety and Flood Damage Reduction Joint Federal Project may also include a 3.5 foot raise of the dams and dikes. If this 3.5 foot raise is determined to be necessary to meet flood protection objectives, additional environmental analysis may be conducted for this raise.

An EIR/EIS was completed for the Folsom Dam Safety and Flood Damage Reduction Project in April 2007. The Record of Decision (ROD) for this project was released in May 2007. The first construction contract for the spillway portion of this project was awarded in October 2007.

The Folsom Dam Safety and Flood Damage Reduction Project will result in some construction-related impacts to recreation use and facilities at Folsom Lake SRA. However, mitigation measures are included in the ROD to minimize these impacts. As the work on this project continues, DPR and Reclamation will work together and with the other involved agencies to minimize and mitigate these impacts.

The vision, goals, guidelines and facility development proposed in this Plan will serve as a framework and blueprint for working with the ACOE, SAFCA and other agencies to minimize and mitigate the impacts of these projects and proposals on recreation and resources within the Unit.

PLACER COUNTY GENERAL PLAN

While no policies in the 1994 Placer County General Plan directly relate to the Unit, several key policies are relevant and could affect the future development on adjacent lands or the involvement of State Parks. Specific policies from the Placer County General Plan are included in the Land Use chapter of the Resource Inventory.

PLACER LEGACY

The Placer Legacy Open Space and Agricultural Conservation Program is intended to protect and conserve open space and agricultural lands in Placer County. The program has been developed to implement the goals, policies and programs of the 1994 Placer County General Plan. The program's goals are to: maintain agricultural uses; protect plant and animal diversity; protect and expand recreation areas; protect scenic and historically

significant areas and sites; establish open-space buffers between communities; and ensure public safety. The program is both voluntary and non-regulatory and remains a priority for the County. In 2002, \$1.3 million was set aside for land acquisition purposes and \$3 million in grant funding was obtained. The program has, among other things, resulted in the planning for protection and improvement of seven watersheds in western Placer County, the development of a GIS that allows detailed mapping and analysis, the development of strategies to protect, restore, and enhance natural areas, and focused efforts on grant funding, voluntary donations, and public/private sector partnerships.

GRANITE BAY COMMUNITY PLAN

Adopted in 1989, the Granite Bay Community Plan affects lands abutting the Unit from the Sacramento County line in the south to Dick Cook Road in the north. This plan is currently being updated by the County. Several key policies are relevant to the Unit and could affect the future development on adjacent lands or the involvement of State Parks. Specific policies from the Granite Bay Community Plan can be found in the Land Use chapter of the Resource Inventory.

HORSESHOE BAR/PENRYN COMMUNITY PLAN

The 1994 Horseshoe Bar/Penryn Community Plan affects lands north of Dick Cook Road to just south of the unincorporated community of Newcastle. Specific policies related to recreation and trails, water quality, open space management, scenic resources, and development within the Folsom Lake watershed are relevant to the Unit. These policies from the Horseshoe Bar/Penryn Community Plan can be found in the Land Use chapter of the Resource Inventory.

EL DORADO COUNTY

The eastern half of the Unit is located in El Dorado County. In 1996 the County adopted General Plan, but in 1999 the Superior Court, County of Sacramento, in the matter of *El Dorado County Taxpayers from Quality Growth, et al. v. El Dorado County Board of Supervisors and El Dorado County*, ruled that in certain respects the County failed to comply with the California Environmental Quality Act (CEQA) in the adoption of the General Plan. As a result, certification of the General Plan Environmental Impact Report (EIR) and adoption of the General Plan were set aside. In response to the Judgment and the Writ of Mandate, the County prepared a new EIR which analyzed the 1996 plan and a number of other alternatives. The County adopted a new General Plan in 2004 and the adoption of this plan was upheld by County voters in a 2005 referendum. In September of 2005 the Superior Court, County of Sacramento, found that the County complied with the direction in Writ of Mandate and CEQA through the preparation of the new EIR and adoption of the new

general plan. This decision was appealed and in April 2006 the County reached a settlement agreement with the plaintiffs. The County is currently implementing the provisions of the new General Plan and accepting applications for development.

A number of policies and land use decisions in the new General Plan could affect the Unit, both beneficially and adversely. Significant development already exists in El Dorado County around the boundary of the Unit. The Rural Residential land use designation, which permits mixed residential and agricultural development at a density of one dwelling unit per 10 – 160 acres, has been attributed to the land directly adjacent to the Peninsula management zone. This will ensure that adjacent land uses will have less of an impact on the Unit when compared to the high density residential development bordering the Unit north of Brown's Ravine near the South Fork of the American River.

Policy 6.2.2.2 of the General Plan (2004) precludes development in high or very high wildland fire hazard areas until the hazard can be reduced to a moderate or lower level. However, there are areas adjacent to the Unit that are classified as moderate wildland fire hazard zones that may still present substantial fire hazard risks. The County has not explicitly included policies to address these areas.

SACRAMENTO COUNTY

The southern portion of the Unit is located in Sacramento County. The American River Parkway Plan (see below) is an element of the Sacramento County General Plan. While no policies in the Sacramento County General Plan (other than the Parkway Plan) directly relate to the Unit, several key policies are relevant and could affect the future development on adjacent lands or the involvement of State Parks. Specific policies from the Sacramento County General Plan are listed in the Land Use chapter of the Resource Inventory.

CITY OF FOLSOM

The City of Folsom is located along the southern shore of Folsom Lake and straddles Lake Natoma. While no policies in the Folsom General Plan directly relate to the Unit, several key policies are relevant and could affect the future development on adjacent lands or the involvement of State Parks. Specific policies from the City of Folsom General Plan are included in the Land Use chapter of the Resource Inventory.

AMERICAN RIVER PARKWAY PLAN

The natural beauty, proximity to an urban population, and recreational values of the lower American River corridor is of such significance that the river has been designated a Recreational River in both the federal and state wild and scenic river systems, and the trail

system of the Parkway has been designated a National Recreational Trail. Additionally, the California legislature in 1985 acknowledged the Parkway's statewide significance by adopting the Parkway Plan through the passage of the *Urban American River Parkway Preservation Act* (Public Resources Code § 5840). The 1985 American River Parkway Plan has authority over the land uses within the Parkway which extends from Downtown Sacramento at the confluence with the Sacramento River to Folsom Dam within the Unit. It is a component of both the Sacramento County and City of Sacramento general plans.

This Plan provides the policies for the preservation and use of the Parkway as a continuous open space greenbelt. The strongest working portions of the Plan are the land use designations and policies, which direct all recreation, restoration, preservation and development of facilities. For instance, the Parkway Corridor Combining (PC) Zone in the County of Sacramento Zoning Code includes special development requirements to improve public access and enjoyment of the riverfront, and to strengthen the amenity that the riverfront can provide to adjoining property.

The current Parkway Plan was adopted in 1985 and is now dated and the update will address specific issues which have arisen over the intervening years. The update will also incorporate more recent flood management and resource management plans, programs and initiatives.

The process of updating the Parkway Plan was initiated in 2003. Since 2003 the County has utilized an Update Citizens Advisory Committee and extensive public involvement to work through issues, changes and new proposed policies in the plan. In the summer of 2006, through the Advisory Committee, the County completed a Draft Updated Parkway Plan for the various approving bodies to consider. The next steps in the County Parkway Planning update process include preparation of an EIR.

As noted, the geographic scope of the Parkway Plan includes Lake Natoma, an area that is formally managed in compliance with the Folsom Lake State Recreation Area General Plan. The Parkway Plan incorporates Folsom Lake General Plan by reference thereby acknowledging its validity as the land use plan for Lake Natoma.

RIVER CORRIDOR MANAGEMENT PLAN FOR THE LOWER AMERICAN RIVER

The purpose of the 2001 River Corridor Management Plan is to institute a cooperative approach to managing and enhancing the Lower American River corridor's aquatic and terrestrial ecosystems, flood-control systems, and recreation values within the framework of the 1985 American River Parkway Plan. The Plan will also provide a significant foundation of policy work and scientific research for the update of the Parkway Plan, a process that

began in early 2003. The Plan is used to inform resource managers and the community about the condition of American River Parkway resources, the challenges facing resource managers and the community, and the goals and objectives for improving resource conditions in a cooperative manner. It also recommends actions to achieve these goals and objectives. The Plan is intended to serve as a single blueprint for enhancing Parkway resources and to provide a cohesive framework for which both public and private entities working in the Lower American River can voluntarily coordinate their efforts to responsibly steward Parkway resources. It is also intended to assist management entities in assessing where their efforts might be most effective in achieving the Plan's goals and objectives and facilitate compliance with existing laws, regulations, and policies.

The River Corridor Management Plan is not legally binding and does not alter the mission, authority, or responsibility of any management entity, nor does it alter the status or use of the Parkway Plan.

FLOODWAY MANAGEMENT PLAN

The Floodway Management Plan was completed in 1998. Through a consensus-based process similar to that used in the development of the River Corridor Management Plan, the Floodway Plan documents a broad range of resource issues and concerns and develops goals and recommendations to better manage resources. Many of the recommendations included in the Plan are intended to provide guidance to resource managers on issues involving multiple resources. A great deal of the management direction provided by the Floodway Plan is carried forward in the Corridor Management Plan. Specific recommendations are intended to encourage additional research, communication, and documentation of important resource conditions and management needs. As with the River Corridor Management Plan and the American River Parkway Plan, the Floodway Management Plan applies to Lake Natoma, an area that is formally managed in compliance with the Folsom Lake State Recreation Area General Plan.

EL DORADO COUNTY RIVER MANAGEMENT PLAN

Over the past 30 years, El Dorado County has attempted to ban and then actively managed whitewater recreation on the South Fork of the American River. In response to landowner complaints about noise, trespassing, litter, and inadequate sanitation, the County banned whitewater recreation by ordinance in 1976; however, the ordinance was later struck down by the State Court of Appeal in the case of *People ex rel. Younger v. County of El Dorado* (1979). Following the Younger decision, the County adopted a Stream and River Rafting ordinance in 1980, and in 1981 the County began active management of commercial outfitters on the South Fork. In 1995, Mr. Bernard Carlson sued the County on the grounds

that the commercial permitting process in the 1988 River Management Plan (RMP), as amended, was discretionary rather than ministerial under the California Environmental Quality Act (CEQA). Mr. Carlson prevailed in this litigation and, as a term of settlement, the County agreed to contract with independent consultants to update the existing RMP and prepare a new one.

The 2001 RMP establishes a set of operational rules for commercial and private boaters navigating the 20.7-mile segment of the South Fork of the American River between the Chili Bar Dam, near State Highway 193, and Salmon Falls Road, at the upper extent of Folsom Lake. The purpose of the RMP is to enhance public health, safety, and welfare, and to preserve environmental values. It includes detailed educational, safety, transportation, monitoring, and agency coordination programs designed to implement the RMP. The RMP also outlines permitting requirements, specifies the carrying capacity of the waterway, and identifies the regulations and ordinances that will operate the Plan. As noted in the Recreation Resources section of this document, commercial and private boaters on the South Fork take-out within the Unit. Commercial boaters are required to take-out at Salmon Falls while private boaters take out just east of the American River Bridge at Skunk Hollow. The Recreation Resources section also notes the difficulties at these take-out sites related to parking capacity, congestion, and traffic and pedestrian safety along Salmon Falls Road and the plan directs the County to work with State Parks and others to identify opportunities to increase parking in the Salmon Falls area.

COMMUNITY OPEN SPACE EFFORTS

There are a number of ongoing efforts by regional conservation organizations to protect open space. These groups may provide opportunities for partnerships with State Parks in acquiring, or protection by other means, important open space lands and significant habitat areas that abut the Unit. These groups include the American River Conservancy, the Placer County Land Trust, the Sacramento Valley Conservancy, Trust for Public Lands and others.

The American River Conservancy (ARC) works with land owners in El Dorado County who are interested in selling or donating land. The Conservancy is currently working to acquire property along the South fork of the American River to complete a greenbelt and hiking trail corridor of public lands from Salmon Falls to Coloma. The Conservancy has worked with the BLM and other agencies to acquire and preserve many of the lands that comprise the Pine Hill Ecological Preserve. This 3,000-acre area of rare and endangered plant habitat is located adjacent to the Unit at Salmon Falls and is managed through a cooperative agreement with the Bureau of Land Management (BLM), CDFG, USFWS, ARC and other agencies.

In Placer County, the Placer County Land Trust works with landowners and conservation partners to permanently preserve natural open space and agricultural lands. The Trust is currently working with other groups to preserve critical lands adjacent to the North and Middle Forks of the American River. Among other organizations working in this area are Protect American River Canyons (PARC) and the Trust for Public Lands.

In Sacramento County, the Sacramento Valley Conservancy has preserved more than 1,300 acres of open space and sensitive habitat areas. The Conservancy supported State Parks in the acquisition of the 44-acre Snipes-Pershing Ravine property along the Lake Natoma Bluffs. The site provides a link between Orangevale and the American River Bikeway along the western shore of Lake Natoma in the Unit.²

4.4.8.2 Significance Criteria and Evaluation Methodology

Potential significant impacts associated with land use have been evaluated using the following criteria (CEQA Guidelines Sections 15000-15387). The adoption and implementation of the project would have a significant effect on land use if it would:

- LU-a Physically divide an established community;
- LU-b Introduce new land uses that would conflict with established uses;
- LU-c Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect; or
- LU-d Conflict with any applicable habitat conservation plan or natural community conservation plan.

4.4.8.3 Environmental Evaluation and Mitigation Measures

The environmental consequences associated with implementing the project alternatives (Preferred Alternative, Alternative 3, and Alternative 4) and the No Project Alternative are summarized for Land Use in Table 8.A. For all alternatives, resource categories and management zones that have an evaluation of “High” effect or “Moderate” effect are more fully described below to present the level of effect. Where necessary, mitigation measures are present to reduce potential impacts.

² <http://www.sacramentovalleyconservancy.org/image/projectmap.pdf>

4.4.8.3.1 *Guidelines*

The Plan contains specific guidelines (referenced below) that would reduce or eliminate potential adverse impacts associated with the combination of land uses that would support varying intensities of use and visitation by:

- Guideline VISITOR-3: Ensure that new and existing visitor facilities and associated services reflect the intent of the park land use designations with respect to resource protection, permitted uses, intensity of uses, and access.
- Guideline CAPACITY-1: Use the management zones established in this General Plan as the guide for allowing and managing appropriate types and levels of public use of park resources.
- Guideline CAPACITY-2: Monitor and periodically assess resource conditions in each management zone to ensure the maintenance of acceptable resource and visitor experience conditions. Design and implement appropriate actions as necessary to achieve desired conditions and to avoid or minimize unacceptable impacts.
- Guideline CAPACITY-3: Utilize the design, size, siting, configuration and modification (including reducing facility capacity if necessary) of facilities as a primary means to limit visitor use to meet the carrying capacity goals and/or limits for each management zone or area. Appropriate facility design will help to achieve the desired conditions for resources and visitor experience and prevent overuse and unacceptable damage to resources.
- Guideline NATSHORE/S-1: If the site is selected, the California Indian Heritage Center (CIHC) may be accommodated on the Museum Flat site provided:
- The facility will be sized, sited, and constructed to minimize impacts to natural resources while providing basic facility needs;
 - The visual impact of structures from Lake Natoma will be minimized by limiting building heights and locating structures away from bluffs; Structures will be located so

as to avoid and minimize impacts on areas of blue oak woodland; and

- The Lake Natoma Bike Path route (a least one branch of the existing paved bike path) through the area will be retained and screened from Museum facilities to the extent possible. Connections to Iron Point Road and Natoma Station will be maintained.

- Guideline RATBAR-3: Prohibit vehicle use outside designated roadways and provide designated low water access and parking areas in specific locations as appropriate to protect natural and cultural resources in the area. Refer to the Park-wide Goals and Guidelines for Park Operations as they relate to off-road vehicle use in the park.
- Guideline PENINSULA-6: Design and implement management strategies and actions to protect the cultural resources within the zone. Actions could include increased boat patrol, posted orders and signage closing areas to public use during low water conditions, and information at access points on the illegality of collecting artifacts and the penalties for doing so.
- Guideline PENINSULA-7: Where feasible, avoid trail alignments that pass through areas of chamise chaparral habitat. Such alignments could threaten potential habitat for special status plant and animal species and human use can be a factor in wildland fire danger.
- Guideline BROWNS-3: The precise location and configuration of any landside facility will be determined through site-specific planning. Existing dry boat storage—a fenced area that can hold 175 boats—could be eliminated, moved, or reconfigured as a means of increasing the parking capacity necessary to accommodate increased slip capacity. The intent of this guideline is to accomplish marina expansion while avoiding the need to develop landside facilities on the southern shore of Brown’s Ravine at Mormon Island Point.

Table 8.A: LAND USE IMPACTS EVALUATION

<i>Park-Wide Goals and Guidelines</i>				
Resource	No Project	Preferred Alternative	Alternative 3	Alternative 4
Invasive Exotic Plant Species	No Impact	No Impact	No Impact	No Impact
Vegetation Management	No Impact	No Impact	No Impact	No Impact
Cultural Resource Management	No Impact	Moderate	Moderate	Moderate
Wildlife Management	No Impact	No Impact	No Impact	No Impact
Watershed/Water Quality Management	No Impact	No Impact	No Impact	No Impact
Visual Resources	No Impact	No Impact	No Impact	No Impact
Unitwide Interpretation	Moderate	Moderate	Moderate	Moderate
Visitor Services			see below	
Visitor Capacity	High	Low	High	Low
Park Operations			see below	
<i>Specific Area Goals and Guidelines</i>				
Management Zone	No Project	Preferred Alternative	Alternative 3	Alternative 4
Nimbus Dam	No Impact	No Impact	No Impact	No Impact
Nimbus Flat/Shoals	Low	Low	Low	Low
Lake Overlook	Low	Low	Low	Low
Mississippi Bar	Low	Low	Low	Low
Negro Bar	Low	Low	Low	Low
Natoma Canyon	No Impact	No Impact	No Impact	No Impact
Folsom Powerhouse	Low	Low	Low	Low
Natoma Shore North	No Impact	No Impact	Low	No Impact
Natoma Shore South	Moderate	Moderate	Low	No Impact
Lower Lake Natoma (AQ)	No Impact	No Impact	No Impact	No Impact
Upper Lake Natoma (AQ)	No Impact	No Impact	No Impact	No Impact
Folsom Dam	Low	Low	Low	Low
Beals Point	Low	Low	Low	Low
Mooney Ridge	High	Low	Low	Low
Granite Bay South	Low	Low	Low	Low
Granite Bay North	High	Low	Low	Low
Placer Shore	No Impact	Low	Low	Low
Rattlesnake Bar	Moderate	Low	Moderate	Low
North Fork Shore	Low	Low	Low	Low
Anderson Island	No Impact	No Impact	No Impact	No Impact
Peninsula	Moderate	Moderate	Low	Moderate
Darrington	No Impact	No Impact	No Impact	No Impact
Skunk Hollow/Salmon Falls	Low	Low	Low	Low
El Dorado Shore	High	Low	Moderate	Low
Brown's Ravine	Low	Low	High	No Impact
Mormon Island Cove	Low	Low	Low	Low
Mormon Island Preserve	No Impact	No Impact	No Impact	No Impact
Folsom Point	Low	Low	Low	Low
Folsom Lake (AQ)	No Impact	No Impact	No Impact	No Impact
Middle North Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Upper North Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Middle South Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Upper South Fork (AQ)	No Impact	No Impact	No Impact	No Impact

4.4.8.3.2 *Impacts*

Impact LANDUSE-1: Implementation of the Plan alternatives would result in the combination of potentially conflicting land uses, including resource conservation and preservation areas located adjacent to developed recreation areas (Significance Criterion LU-b).

In several locations, management zones that are designated for preservation would be situated immediately adjacent to medium and high intensity recreation areas. In some instances, management zones designated for conservation are situated adjacent to high intensity recreation areas. This proximity could result in potential adverse impacts to site resources.

Specific impacts related to the combination of land uses are described below.

PARK-WIDE GOALS AND GUIDELINES

Cultural Resources Management

Preferred Alternative, Alternative 3, and Alternative 4: Moderate Impact

Implementation of these alternatives would result in the additional development of interpretive facilities, such as the State Indian Museum and the Negro Bar Cultural Center, at various locations within the park. Impacts related to development of these facilities are addressed by management zone in the Specific Area Goals and Guidelines section below.

Unitwide Interpretation

All Alternatives: Moderate Impact

See “Cultural Resources Management” above.

Visitor Capacity

No Project Alternative and Alternative 3: High Impact

Implementation of these alternatives would allow for an increase in marina capacity, increases in the number of camping sites, and additional parking that could potentially result in a substantial increase in visitation. The provision of these facilities to accommodate increased use could potentially result in a visitor “carrying capacity” that may negatively impact aquatic and terrestrial resource values and diminish the visitor experience. Impacts related to increased visitor capacity are addressed by management zone in the Specific Area Goals and Guidelines section below.

SPECIFIC AREA GOALS AND GUIDELINES

In the discussions below, land use designations for each alternative, with the exception of the No Project Alternative, are indicated in parentheses.

Natoma Shore South

No Project Alternative, Preferred Alternative (Conservation): Moderate Impact

Development of the State Indian Museum would result in increased visitor use in this management zone. Currently, this management zone is largely undeveloped with important natural resource and open space values. The new and increased intensity of use in this area may conflict with natural resource protection and preservation within this management zone. Management direction for this zone (*i.e.*, siting and designing the museum to minimize natural resource and visual impacts) would help to minimize the impacts due to increased use; therefore, this impact is considered moderate. Implementation of the guidelines listed above would reduce potential impacts to a level below significance. No mitigation measures are required. The No Action/No Project Alternative would not implement the guidelines developed for the Plan.

Mooney Ridge

No Project Alternative: High Impact

Development of a 200-slip marina with snack bar, boating equipment rental, ferry terminal, 250 parking spaces, operations dock/office, and restrooms, would greatly increase the intensity of visitor use in this management zone. Currently, Mooney Ridge is largely undeveloped (trail access only). The significant increase in the level of development proposed under the No Action Alternative would alter the existing character of the site and conflict with the natural resource values of this zone, including oak woodland/grassland habitat for special status species. In addition, development of a new marina facility could greatly increase boating densities on Folsom Lake, potentially impacting the lake's resource values and diminishing the visitor experience. The No Action/No Project Alternative would not implement the guidelines developed for the Plan.

Granite Bay North

No Project: High Impact

The addition of 250 parking spaces, paved roads, and paved access to just below the high water mark, has the potential to increase the intensity of visitor use at Oak Point/Dotons Point. This management zone remains largely undeveloped and supports natural resources, as well as several known cultural resource sites. The

significant increase in the intensity of use proposed under the No Action Alternative would potentially conflict with protection of these natural and cultural resource values. The No Action/No Project Alternative would not implement the guidelines developed for the Plan.

Rattlesnake Bar

No Project Alternative: Moderate Impact

Implementation of the No Project Alternative would result in additional development of 100 picnic tables, trail camp, staff residence, and floating restroom and upgrades to the equestrian staging area. Development of these additional facilities could increase the intensity of visitor use in this management zone. This zone has been minimally developed and supports several unique resources, including Avery's Pond. It also lies between two conservation zones – Placer Shore and North Fork Shore. Development of facilities at Rattlesnake Bar could also increase visitation to these other two zones. The increased intensity of visitor use resulting from facility development at Rattlesnake Bar could negatively impact resource protection goals within this and adjacent zones. The No Action/No Project Alternative would not implement the guidelines developed for the Plan.

Alternative 3 (High Intensity Recreation): Moderate Impact

Implementation of Alternative 3 would result in the development and expansion of day use facilities including the extension and widening of the boat ramp, additional parking, improvement of the access road, addition of 50-100 picnic sites, and improvement of trail facilities. Development of these additional facilities could increase the intensity of visitor use in this management zone which may result in land use conflicts with the two neighboring management zones, North Fork Shore and Placer Shore. Both are conservation zones under Alternative 3 and minimally developed with trails. Development of facilities at Rattlesnake Bar could potentially increase visitation to these other two zones resulting in conflicts with natural resource protection and preservation goals within these areas. Implementation of the guidelines listed above would reduce potential impacts to a level below significance. No mitigation measures are required.

Peninsula

No Project Alternative: Moderate Impact

The additional development of shower facilities, RV sanitary station, 200 picnic sites and beach, loop trail, trail staging area and trail camp has the potential to significantly increase visitor use of the Peninsula. Although this management zone

has already been developed with campground and day-use facilities, the remainder of this zone remains undeveloped and supports rare flora and fauna. The intensity of visitor use associated development of new facilities could conflict with the resource protection and management goals of this zone. The No Action/No Project Alternative would not implement the guidelines developed for the Plan.

Preferred Alternative (Conservation) and Alternative 4 (Conservation): Moderate Impact

The additional development of 50-100 campsites and trailhead facilities has the potential to increase visitor use of the Peninsula. Although this management zone has already been developed with campground and day-use facilities, the remainder of this zone remains undeveloped and supports relatively rare flora and fauna. The intensity of visitor use associated with the development of new facilities could conflict with the resource protection and management goals of this zone. Due to the level of development proposed under these alternatives, this impact is considered to be moderate. However, through appropriate design measures and location considerations, the proposed facilities could be constructed and operated in a manner consistent with the land use designation for this area. Implementation of the guidelines listed above would reduce potential impacts to a level below significance. No mitigation measures are required.

El Dorado Shore

No Project Alternative: High Impact

The development of 80 campsites, RV sanitary station, boat dock, boat camping, swim beach with restrooms and trail staging area in the vicinity of New York Creek/Monte Vista has the potential to significantly increase the level of visitor use in this zone. Although this area was previously developed as a campground, it has been out of use for some time and has returned to a largely natural state. The level of use proposed under these two alternatives could conflict with the resource protection goals of this management zone and adjacent zones. Due to the level of development proposed under these alternatives, this impact is considered to be moderate. The No Action/No Project Alternative would not implement the guidelines developed for the Plan.

Alternative 3 (Medium Intensity Recreation): Moderate Impact

The development of paved formalized parking areas at Sweetwater Creek, a major trailhead and staging facility at Falcon Crest and day use facilities in the vicinity of the former Monte Vista campground has the potential to significantly increase the level of visitor use in this zone. Although this area was previously developed as a

campground, it has been out of use for some time and has returned to a largely natural state. The level of use proposed under this alternative could conflict with the resource protection goals of this management zone. Due to the level of development proposed under this alternative, this impact is considered to be moderate. Implementation of the guidelines listed above would reduce potential impacts to a level below significance. No mitigation measures are required.

Brown's Ravine

Alternative 3 (High Intensity Recreation): High

Under this alternative, Brown's Ravine Marina would be expanded into Mormon Island Cove to include roads, parking areas, boat ramps, slips, dry storage and other facilities. Development of these additional facilities would substantially increase the intensity of visitor use in this management zone which may result in land use conflicts with the two neighboring management zones, Mormon Island Cove and Mormon Island Preserve. Development of additional facilities at Brown's Ravine could potentially increase visitation to these other two zones resulting in conflicts with natural resource protection and preservation goals within these areas. Mormon Island Cove has a medium intensity recreation land use under Alternative 3 and is currently undeveloped except for a trailhead with parking for 50 cars. Mormon Island Preserve has a preservation land use under Alternative 3 and has significant and sensitive resources, including vernal pools.

Implementation of the above listed guidelines would reduce impacts affecting land uses to less than significant levels. No mitigation measures are required. Consequently, the conditions included in the Significance Criteria (LU-a through LU-d) have been addressed.

4.4.9 Recreation Resources

4.4.9.1 Affected Environment

With more than 1.5 million visitors in 2000, the Unit is one of the most popular in the State Park system. Aquatic activities such as boating, waterskiing, sailing, and swimming are the most popular activities in the Unit and account for about 85 percent of all recreation visits. Land-based activities such as hiking, biking, picnicking, camping, and horseback riding attract the remaining 15 percent of visitors.

Several other local and regional recreational facilities in this part of Northern California offer similar recreational experiences as the Unit, although the Unit's lower elevations permit year round aquatic and terrestrial uses. For instance, the 35,000-acre Auburn SRA abuts the Unit to the north and provides similar recreational uses, and various local city and county parks provide limited opportunities by comparison, but compete for the day use picnic crowd. Nearby reservoirs located along I-80 and Highway 50 corridors east of the Unit include: Jenkinson Lake; Ice House Reservoir; Union Valley Reservoir; Loon Lake Reservoir; Lake Spaulding; Donner Lake; and Stampede Reservoir. Several of these facilities in the Sierras are located within national forest lands and provide a full range of camping and trail facilities.

4.4.9.1.1 *Aquatic Uses and Facilities*

Aquatic uses in the Unit vary considerably between Folsom Lake and Lake Natoma. On Folsom Lake, the shape of the Lake is such that certain users are attracted to certain areas of the lake. For instance, sailors prefer the open waters and high winds of the central area of the lake, while waterskiers and wakeboarders prefer the more sheltered waters of the narrow North and South forks of the American River. These areas are also preferred by boaters looking for quiet areas to cruise, drift, and swim. This can result in user conflicts and safety concerns due to the wide range of vessel types operating in close confines, a situation that is exacerbated by the low lake levels experienced later in the season resulting in less water surface area being available to accommodate high use. On Lake Natoma, the small surface area of the Lake combined with the increasing popularity of paddling sports and major events hosted by CSUS at Nimbus Flat results in user congestion and inadequate car top launch capacity.

Aquatic facilities in the Unit include Folsom Lake Marina, various boat launch facilities, and the whitewater rafting facilities at Skunk Hollow/Salmon Falls.

FOLSOM LAKE MARINA

The Folsom Lake Marina includes 685 wet slips and 175 dry storage slips. The waiting list for slip rentals is years long, due in part by increased urbanization in this area of El Dorado County. There is currently a lack of ramp and parking capacity at the main launch area at peak times and the alternative launch at Hobie Cove provides little relief since it only becomes available later in the season when lake levels have dropped. Expansion of the marina facility here would be difficult since Brown's Ravine is narrow and fairly shallow, which limits the water area available for slip facility expansion, and since there is limited land area due to the topography and the proximity of residential development.

BOAT LAUNCH FACILITIES

There are nine boat launch facilities in the Unit, six on Folsom Lake and three on Lake Natoma, which offer 58 and 6 launch lanes respectively. 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, and sailboat launching, are fully hard surfaced and have demarcated lanes and turnaround areas, as well as adjacent parking areas. An informal boat launch at Beal's Point is popular with fisherman and other small craft owners. The ramps at the Peninsula are used more as mooring points to access this isolated area. On Lake Natoma, the 5 mph speed limit for motorized watercraft means that launch facilities on the Lake are used primarily by paddlers, rowers, and fishermen. The Negro Bar launch is popular with fishermen, as is the launch at Willow Creek, which is largely unimproved. The docks at Nimbus Flat are primarily for non-motorized boat users, such as kayakers, paddlers, and rowers. Boat launch and parking capacity at Granite Bay, Folsom Point, and Brown's Ravine is often exceeded on peak season weekends and users must be turned away. And while boat ramp capacity could be replaced in some locations, it cannot occur without a concurrent increase in parking capacity.

WHITEWATER RAFTING FACILITIES

Commercial and private whitewater rafting are popular activities on the South Fork of the American River, the highest use river in the West. Several agencies have jurisdiction in the lower run of the American River just above Folsom Lake, including: the BLM which owns 12.5 miles of river frontage; State Parks which owns 1.5 miles of river frontage between Hospital Bar and Salmon Falls Road; and El Dorado County which is responsible for permitting river use by commercial outfitters. Unit facilities at Salmon Falls and Skunk Hollow are specifically intended to accommodate rafting activity. Between 50,000 and 60,000 commercial boaters take-out at Salmon Falls, which includes a large area for bus parking and queuing, informal take-out area, four vault toilets, and drinking water. It is estimated that as many as 24,000 private boaters take-out at the Skunk Hollow facility,

which includes a small paved parking area for 35 vehicles, a raft loading zone with drying rails, two vault toilets, a paved path from the river up to the parking area, and several picnic tables. Both facilities receive heavy use during peak season weekends which results in backups onto Salmon Falls Road and overflow parking occurring on the shoulders of Salmon Falls Road for about ½-mile in each direction from the facility entrances. This raises concerns about traffic flow and pedestrian safety since the shoulders of Salmon Falls Road are quite narrow. Expansion of either facility would be difficult due to the limited land area available.

4.4.9.1.2 Terrestrial Uses and Facilities

Campgrounds, day use facilities, and trails comprise the Unit's terrestrial facilities.

CAMPING FACILITIES

There are a total of 176 campsites in the Unit that accommodate tent, trailer, RV, and group campers. These sites are spread across three separate camping areas including Peninsula Campground, Beal's Point Campground, and Negro Bar Group Campground. Peninsula Campground includes 104 sites that can accommodate a maximum trailer length of 18 feet and RV length of 24 feet. It also includes 5 restrooms (no showers), one boat ramp, and a small amphitheater suitable for group use. Beal's Point Campground includes 49 single campsites, 20 RV sites, a sanitary dump station, 2 restrooms, and showers. While the RV sites were constructed with electrical hookup, this service is no longer provided. The campground at Negro Bar is comprised of 3 reservation only group campsites designed to accommodate approximately 50 people each. A restroom is also provided. Full capacity is often reached at all three campgrounds on peak season weekends, particularly at the more accessible Beal's Point and Negro Bar sites. However, there is limited land area available for expansion at Beal's Point, and expansion of the Peninsula campground may be limited by the proximity of sensitive habitats that support a variety of threatened and/or special status plant and animal species. There may be opportunities to provide other types of camping, such a primitive boat-in or horse-in, in other areas of the Unit. Other issues at camping area include problems with loud and inappropriate behavior, underage drinking and other law enforcement problems and illegal camping by the homeless and others in the off season at Beal's Point.

DAY USE FACILITIES

Day use facilities are the primary gateways to the Unit and accommodate the majority of total visitors and recreational activities. Key facilities on Folsom Lake include Granite Bay, Beal's Point, and Folsom Point. Lake Natoma facilities include Nimbus Flat, Negro Bar, and Folsom Powerhouse State Historic Park.

Granite Bay - Granite Bay is the most popular day use facility in the Unit and includes a series of facilities along the shoreline. The main beach area includes a 1,200-foot long swim beach, snack bar and beach equipment concessions, restrooms, a grassy picnic area, tot lot, and a paved parking area. The North Granite area is popular for fishing, horseback riding, and hiking, and includes an informal beach at Oak Point, equestrian staging area, Dotons Point, and Beeks Bight. An activity center located just north of the Main Beach is available by reservation for group use and includes a small picnic area. Capacity is a major concern at Granite Bay, particularly during peak season weekends when the day use parking area at Main Beach and the parking area and launch ramps at the launch area fill by midday. Access is another concern since Douglas Boulevard is the only entrance to Granite Bay; significant backups occur along the roadway when the parking areas fill.

Beal's Point - Beal's Point is second only to Granite Bay as the busiest day use facility in the Unit. This facility provides a 1,000-foot long swim beach and concessions facility with a snack bar, beach equipment rentals, restrooms, and paved parking area. A large grassy area along the lake includes picnic tables, barbeques, and restroom facilities. As with Granite Bay, the parking area generally fills by midday during peak season weekends causing traffic to backup onto Auburn-Folsom Road and surrounding neighborhood streets. Unrestricted shoreline access is an issue here when lake levels fall and day users and boaters drive on the shoreline to the water's edge. The resulting erosion damage can impact cultural resource sites and reduce water quality.

Folsom Point - Folsom Point is the most popular day use area on the eastern shore of Folsom Lake. Picnic facilities here include a shaded picnic area with tables and barbeques, two vault toilets, and parking for 77 vehicles. As noted, Folsom Point also includes the largest formal boat launch facilities on this side of the Lake and there is an additional 129 parking spaces at the boat ramp. The popularity of Folsom Point for the staging of special aquatic events causes both the aquatic and day uses facilities to reach capacity quickly during peak season weekends. The Folsom Lake Yacht Club and California State University Sacramento (CSUS) Aquatic Center have expressed interest in locating a multi-use aquatic facility here.

Nimbus Flat - Nimbus Flat is located just upstream from Nimbus Dam and adjacent to the CSUS Aquatic Center. A wide range of facilities are offered here, including two small beaches, observation area, grassy picnic area with tables, two small boat docks, boat ramp, two restrooms, and a large paved parking area. Nimbus Flat provides the ideal location for watching the various rowing competitions and events hosted by the neighboring CSUS Aquatic Center on Lake Natoma. The Aquatic Center, which hosts between eight and ten major events each year, obtains permits from State Parks to use Nimbus Flat to stage these

events. These events include college-level rowing championships, regional and national masters-level rowing regattas, and other events.

Negro Bar - Negro Bar extends along 1 mile of the Lake Natoma shoreline between the Lake Natoma Bluffs to the south and the Old Rainbow Bridge to the north. The main day use area includes an upper area with a large grassy picnic area with tables and shade ramadas, one restroom, and a paved parking area. An equestrian staging area is located just north of the parking area. The lower area on the Lake Natoma shoreline includes a shaded picnic area with tables and barbecues, one restroom, a small beach with views of the lake and bluffs, and a concessionaire renting canoes and kayaks. The area of Negro Bar between Rainbow Bridge and the Lake Natoma Crossing is popular with local fishermen and paddlers and with swimmers and sunbathers who use the Rainbow Rocks just below Rainbow Bridge. There is interest from outside groups to develop additional recreational and cultural facilities at Negro Bar, including a boathouse and dock facility for the Masters Rowing Club and a cultural center for the Sacramento African American Cultural and Historical Society in the area of the “cottage.”

Folsom Powerhouse State Historic Park - The Folsom Powerhouse is the most important historic and interpretive facility in the Unit. It is one of the oldest hydroelectric facilities in the world and was the nation’s first power system to provide high-voltage alternative current over long distance transmission lines for major municipal and industrial use. The powerhouse, which is listed on the National Register of Historic Places, includes the main powerhouse museum, lower powerhouse, associated forebay and wooden flumes, blacksmith shop (gift shop), picnic area, a comfort station, and a small parking area. Significant improvements are already planned for this day use facility, including seismic upgrades, a larger parking area with room for buses, and a new visitor center to be located on the north side of the Powerhouse entrance. These improvements are likely to increase attendance to the Powerhouse, particularly if the American River Water Education Center (ARWEC) moves from its current location at Park headquarters to this new visitor center.

TRAILS

The trail system in the Unit is extensive, linking most of the Unit’s facilities, and accommodating a variety of users including walkers and hikers, horseback riders, cyclists, and mountain bikers. Although there are 94 miles of existing trails within the Unit, there are many areas that are not accessible by trail and there is not a continuous trail connection 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 hard-surface bicycling. The increased demand also results in a growing concern about conflicts between the different kinds of trail users, particularly on multi-use trails which are open to all users. The primary concerns of trail users include trail maintenance, equitable access, adequate enforcement of trail safety and etiquette, informational and educational signage, and additional trail opportunities. Currently there are 46 miles of pedestrian/equestrian trails, 36 miles of mixed use trails, 9 miles of mountain bike/pedestrian trails, and 3 miles of pedestrian-only trails. Sixteen miles of these trails are paved.

4.4.9.2 Significance Criteria and Evaluation Methodology

Potential significant impacts associated with recreation have been evaluated using the following criteria (CEQA Guidelines Sections 15000-15387). The adoption and implementation of the project would have a significant effect on recreation if it would:

- REC-a** Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial deterioration of the facility would occur or be accelerated; or
- REC-b** Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

4.4.9.3 Environmental Evaluation and Mitigation Measures

The environmental consequences associated with implementing the project alternatives (Preferred Alternative, Alternative 3, and Alternative 4) and the No Project Alternative are summarized for Recreation in Table 9.A.

4.4.9.3.1 *Guidelines*

In addition to all of the guidelines listed in the other individual resource sections of this EIS/EIR, the Plan contains the following specific guidelines (referenced below) that would avoid or minimize to a less-than-significant level environmental impacts associated with recreation facilities by:

Table 9.A: RECREATION RESOURCES IMPACTS EVALUATION

<i>Park-Wide Goals and Guidelines</i>				
Resource	No Project	Preferred Alternative	Alternative 3	Alternative 4
Invasive Exotic Plant Species	Moderate	Moderate	Moderate	Moderate
Vegetation Management	Moderate	Moderate	Moderate	Moderate
Cultural Resource Management	No Impact	High	High	High
Wildlife Management	No Impact	Low	Low	Low
Watershed/Water Quality Management	High	No Impact	No Impact	No Impact
Visual Resources	No Impact	No Impact	No Impact	No Impact
Unitwide Interpretation	High	High	High	High
Visitor Services			see below	
Visitor Capacity			see below	
Park Operations			see below	
<i>Specific Area Goals and Guidelines</i>				
Management Zone	No Project	Preferred Alternative	Alternative 3	Alternative 4
Nimbus Dam	No Impact	Low	Low	Low
Nimbus Flat/Shoals	Low	Low	Moderate	Low
Lake Overlook	Moderate	Moderate	High	Moderate
Mississippi Bar	Moderate	Moderate	High	Moderate
Negro Bar	Low	Moderate	High	Moderate
Natoma Canyon	No Impact	Moderate	Moderate	Moderate
Folsom Powerhouse	Moderate	High	High	High
Natoma Shore North	Low	Low	High	Low
Natoma Shore South	High	High	High	Low
Lower Lake Natoma (AQ)	No Impact	No Impact	No Impact	No Impact
Upper Lake Natoma (AQ)	No Impact	No Impact	No Impact	No Impact
Folsom Dam	No Impact	Moderate	Moderate	Moderate
Beals Point	No Impact	Moderate	Moderate	Moderate
Mooney Ridge	High	Moderate	Moderate	Moderate
Granite Bay South	Low	Moderate	Moderate	Moderate
Granite Bay North	High	Moderate	High	Moderate
Placer Shore	No Impact	Low	Low	Low
Rattlesnake Bar	High	Moderate	High	Moderate
North Fork Shore	Moderate	Moderate	Moderate	Moderate
Anderson Island	Moderate	Low	Low	Low
Peninsula	High	Moderate	High	Moderate
Darrington	No Impact	Low	Low	Low
Skunk Hollow/Salmon Falls	Low	Moderate	Moderate	Moderate
El Dorado Shore	High	High	High	High
Brown's Ravine	Moderate	Moderate	High	Moderate
Mormon Island Cove	Moderate	Moderate	High	Moderate
Mormon Island Preserve	High	High	High	High
Folsom Point	High	High	High	High
Folsom Lake (AQ)	No Impact	No Impact	No Impact	No Impact
Middle North Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Upper North Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Middle South Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Upper South Fork (AQ)	No Impact	No Impact	No Impact	No Impact

- Guideline VISIT-2: Ensuring that new and existing visitor facilities and associated services reflect a balance between the need for recreation, resource protection, and interpretation and education.
- Guideline VISIT-3: Ensuring that new and existing visitor facilities and associated services reflect the intent of the park land use designations with respect to resource protection, permitted uses, intensity of uses, and access.
- Guideline VISIT-4: Ensuring that new and existing visitor facilities are designed to minimize dependence on regular, ongoing maintenance operations and avoid activities that would be environmentally damaging to keep them operational.
- Guideline VISIT-6: Locating larger public use facilities in areas that have convenient access and are suitable for higher intensities of use (i.e. less sensitive resource values).

4.4.9.3.2 *Impacts*

Impact REC-1: Implementation of the Plan alternatives would result in the development of additional recreation facilities that could adversely affect the environment (Significance Criterion REC-b).

The development of additional recreational facilities associated with Plan implementation could adversely affect the park's existing natural, cultural, and visual resources as well as create potential air quality, noise, and traffic impacts as described in their respective sections. In summary, impacts related to the development of additional recreation facilities include:

Aesthetics/Visual Resources: The development of additional recreational facilities associated with Plan implementation could adversely affect the park's existing scenic quality and character by reducing scenic vistas, damaging scenic resources, and creating new sources of light and glare. Sources of new lighting and glare associated with build out of the Plan could adversely affect nighttime views and protected wildlife communities.

Air Quality: Implementation of the Plan would involve the construction of additional facilities and site improvements that could generate a short term increase in the emissions of air pollutants such as carbon monoxide (CO), nitrogen oxides (NO_x), particulate matter (PM), and sulphur oxides (SO_x). The operation of these additional facilities and site

improvements has the potential to generate increased emissions of air pollutants resulting from both stationary and mobile sources (increased traffic), and cause CO hot spots. Clearing and grading activities related to construction may disturb asbestos bearing soil and rock material and release asbestos fibers into the air.

Biological Resources: The development of additional recreational facilities associated with Plan implementation could adversely impact habitat that supports sensitive and special status species or the species themselves. Chaparral, oak woodland, riparian, seasonal wetlands and vernal pools, grassland/oak savanna, creek and stream, pond, and marsh habitat located in the park all have the potential to support special status plant and/or wildlife species. In addition, buildings and other structures may provide habitat for two species of bats that are California Species of Special Concern. Development of recreation facilities could also interfere with the movement of native wildlife species or migratory fish through established wildlife corridors.

Cultural Resources: Ground-disturbing activities, which may occur as a result of construction of recreation facilities, may disturb known or unknown cultural resources and/or human remains. Expansion and development of recreational facilities at Rattlesnake Bar and the Peninsula could adversely impact the most unique geologic feature in the park.

Geology/Soils: Development and expansion of recreational facilities in certain areas of the park could expose visitors to adverse impacts related to landslides and would include substantial grading activities that could result in soil erosion. Clearing and grading activities related to construction may disturb asbestos bearing soil and rock material and release asbestos fibers into the air.

Hydrology: The development of new and expanded recreation facilities associated with Plan implementation could increase impervious surfaces and potentially increase the rate and amount of storm water runoff that may impact park hydrology and water quality. Increased recreation development would result in an increased number of recreation facilities on Folsom Lake that could be inundated during an extreme flood event, thereby exposing greater number of people and structures to risk from flooding.

Land Use: Implementation of the Plan alternatives would result in the juxtaposition of a variety of land uses, including resource conservation and preservation areas adjacent to developed recreation areas. In several locations, management zones that are designated for preservation would be situated immediately adjacent to medium and high intensity recreation areas. In some instances, management zones designated for conservation are

situated adjacent to high intensity recreation areas. This proximity could result in potential adverse impacts to site resources.

Noise: The construction of additional recreational, interpretive, and administrative facilities associated with Plan implementation could potentially result in increased noise levels. The operation of these additional facilities could potentially result in increased noise levels related to both increased traffic on local roadways and non-traffic sources.

Traffic/Circulation: Implementation of the Plan would allow the development of additional facilities and site improvements that could generate increased vehicle trips on area roadways that would cause levels of service to deteriorate or create unsafe traffic conditions.

Utilities: Implementation of the Plan would allow the development of additional facilities and site improvements that could generate increased demand for law enforcement and emergency medical services and increased demand for additional water, wastewater, electricity, gas, telephone, and solid waste disposal services.

In addition, follow-up environmental review would be required as specific components or features of the Plan are implemented. A site-specific impact assessment would be conducted at that time, including more precise mitigation requirements, but would generally reflect the impact findings made in this EIS/EIR.

Implementation of the above listed guidelines and mitigation measures contained throughout this document would reduce environmental impacts associated with recreation facilities to less than significant levels. Consequently, the conditions included in the Significance Criteria (REC-a and REC-b) have been addressed.

4.4.10 Traffic/Circulation

4.4.10.1 Affected Environment

4.4.10.1.1 Access

The Folsom Lake State Recreation Area (the Unit) is located adjacent to a major metropolitan area. As such, good interregional and regional access is available to the Unit. The major interstate highways providing access are Interstate 80 (I-80) for origins/destinations northeast and southwest, and U.S. Highway 50 (US-50) for origins/destinations east and west.

Most visitors access the Unit by car via the local roadways discussed below. These roadways encompass a study area that consists of four jurisdictions: the City of Folsom, City of Roseville, Placer County and El Dorado County.

In addition to vehicular access, visitors may take advantage of bicycle lanes that exist on several roadways in the vicinity of the Unit including Auburn-Folsom Road/Folsom Boulevard, Natoma Street and Green Valley Road. Public transportation is currently provided to the Unit via bus and light rail service. Bus service to and from the Unit within the City of Folsom, City of Roseville, Sacramento County, and Placer County is primarily provided by Folsom Stage Line, Roseville Transit, Sacramento Regional Transit, and Placer County Transit, while light rail transit is provided by Sacramento Regional Transit.

DOUGLAS BOULEVARD

Douglas Boulevard is an east-west roadway that provides access to the Unit from I-80. From I-80 to Hazel Avenue, Douglas Boulevard is a six-lane divided roadway. Between Hazel Avenue and Auburn Folsom Road, Douglas Boulevard is a four-lane divided roadway. Douglas Boulevard becomes a two-lane undivided roadway east of Auburn-Folsom Road. Douglas Boulevard provides access to Granite Bay North and Granite Bay South. Granite Bay South is one of the most heavily used areas in the Unit.

AUBURN-FOLSOM ROAD/FOLSOM BOULEVARD

Auburn-Folsom Road is a four-lane undivided north-south roadway north of Folsom Dam Road and includes Class II (on-road) bicycle lanes. The road is also a four-lane undivided roadway south of Folsom Dam Road, but becomes a four-lane divided roadway in the City of Folsom. This roadway is named Folsom-Auburn Road from the Placer County line south to Greenback Lane/Riley Street. South of Greenback Lane/Riley Street it is known as Folsom Boulevard. Auburn-Folsom Road provides north-south access between the cities of Auburn in the north and Folsom in the south. Auburn-Folsom Road/Folsom Boulevard provides

access to the Unit from the City of Auburn to the north and its interchange with US-50 to the south. Auburn-Folsom Road/Folsom Boulevard provides access to Rattlesnake Bar, Beals Point, and the eastern half of Lake Natoma .

Placer County plans to continue the widening along Folsom-Auburn Road from two lanes to four lanes from the Sacramento County line to Douglas Boulevard. Completion of this project will increase capacity of Auburn-Folsom Road in the vicinity of some major activity areas in the Unit. Specifically, there is the potential for enhanced access to Beals Point and the Granite Bay boat launch area.

NATOMA STREET

Natoma Street is an east-west roadway in the City of Folsom. From Folsom Boulevard to Folsom Dam Road, the road is a two-lane undivided roadway. From Folsom Dam Road to Green Valley Road, Natoma Street is a three-lane roadway (two eastbound lanes). East Natoma Street provides access to Folsom Point. Natoma Street also provides local circulation between the various Unit areas.

The City of Folsom proposes to widen East Natoma Street from Fargo Way to Blue Ravine Road/Green Valley Road from two lanes to four lanes.

GREEN VALLEY ROAD

Green Valley Road is a two lane east-west roadway in the City of Folsom and El Dorado County. The roadway varies frequently between a divided and an undivided roadway and provides a two way left turn lane in some areas. Green Valley Road provides access to Brown's Ravine.

El Dorado County recently widened Green Valley Road from two to four lanes from the Sacramento County line to Francisco Drive. This segment of Green Valley Road provides access to Brown's Ravine/Folsom Marina. This project could provide an opportunity to enhance vehicular access to Brown's Ravine/Folsom Marina from Green Valley Road. In addition, El Dorado County plans to widen Sophia Parkway, a newly constructed two-lane divided roadway with a Class I (off-road) bicycle path, to four-lanes in 2020. Sophia Parkway connects Green Valley Road to Russel Ranch Road in Folsom.

EL DORADO HILLS BOULEVARD

El Dorado Hills Boulevard is a four-lane, divided, north-south roadway from US-50 to St. Andrews Drive in El Dorado County. North of St. Andrews Drive, El Dorado Hills Boulevard is a two lane undivided roadway. North of Green Valley Road, El Dorado Hills

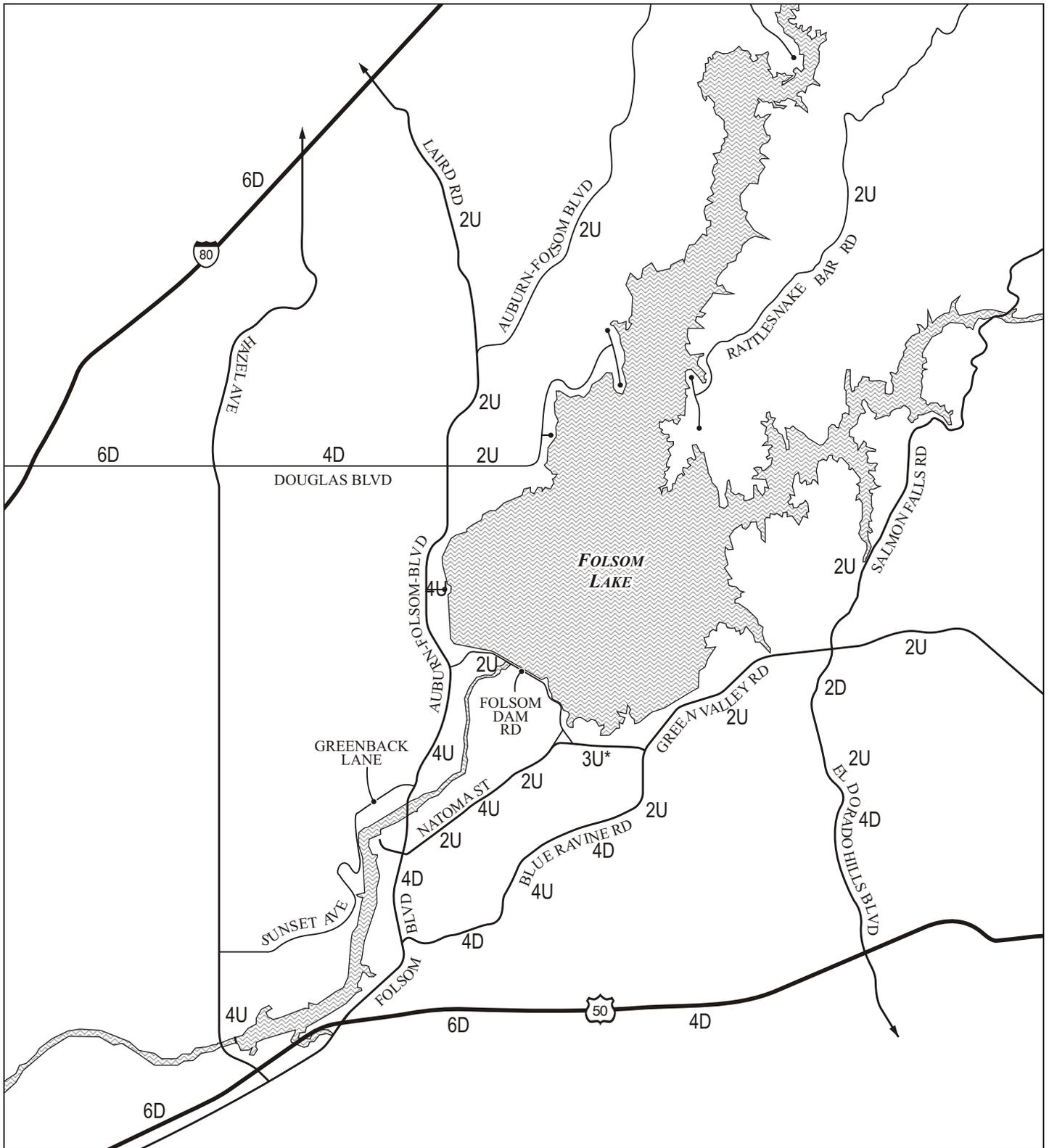
Boulevard becomes Salmon Falls Road, a two lane rural roadway providing access to the Unit along the El Dorado Shore.

El Dorado County proposes to widen El Dorado Hills Boulevard to a four-lane divided roadway from Harvard Way to Green Valley Road. The anticipated completion year is 2020. In addition, the project would extend El Dorado Hills Boulevard directly north of Crown Hills Drive through Francisco Drive to the existing Green Valley Road/Francisco Drive intersection. The realignment of this intersection is in the beginning of the CEQA process. El Dorado County has also constructed modifications to the US-50 interchange at El Dorado Boulevard. Additional interchange improvements are also planned including the replacement of the US-50 bridge to accommodate widening of El Dorado Hills Boulevard. An eastbound off-ramp will be constructed and the westbound off-ramp will be widened. Also, a new two-lane extension of Saratoga Road from Arrowhead to Park Drive will be constructed. El Dorado Hills Boulevard will be widened from five to six lanes from Park Avenue/Saratoga to US-50 westbound ramps. The anticipated completion year is 2006/2007.

CIRCULATION

The Unit is made up of many individual recreation areas, which provide access to Folsom Lake and Lake Natoma (American River). These recreation areas offer varied recreational opportunities including boating, camping, picnicking, swimming, hiking, and mountain biking. Two lane roadways with no curb and gutter characterize the circulation within each recreation area. Some pedestrian sidewalks and walkways are present at each area to direct visitors to major activity areas.

Access to the individual recreation areas is provided by the public roadway system surrounding the lake. The major roadways providing access to the Unit, along with the number of lanes on each roadway is illustrated in Figure 10.A. The major roadways providing access to these recreation areas are Douglas Boulevard, Auburn-Folsom Road, Folsom Dam Road, Green Valley Road and Salmon Falls Road.



LSA

LEGEND

- # - Number of Lanes
- D - Divided
- U - Undivided
- * - 2 EBT, 1 WBT



NOT TO SCALE

FIGURE 10.A

*Folsom Lake State Recreation Area &
Folsom Powerhouse State Historic Park
Roadway Lane Configuration*

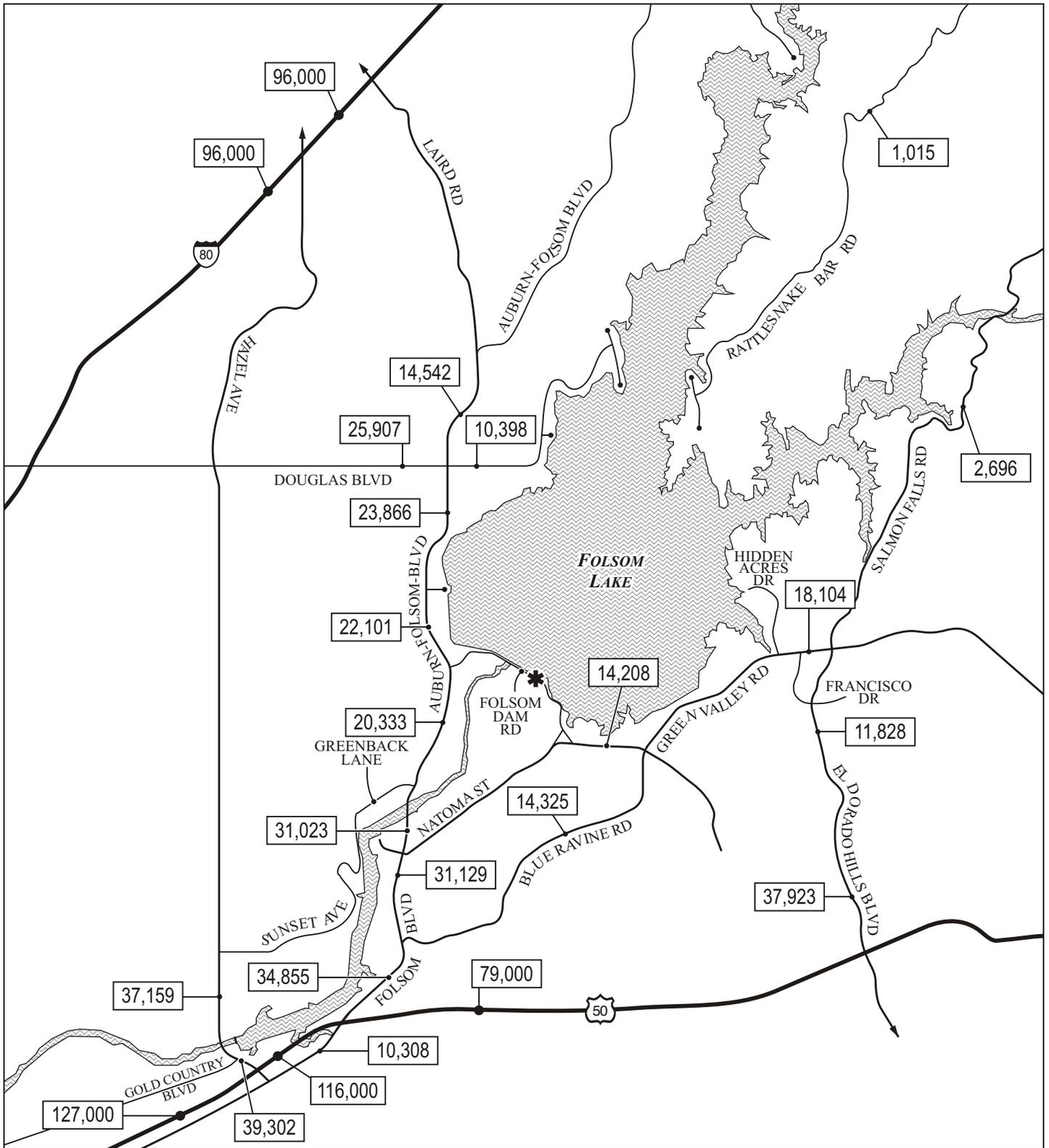
TRAFFIC VOLUMES AND LEVEL OF SERVICE

Existing traffic volumes for major roadways throughout the Unit were collected on November 11-13, 2005. The existing Average Daily Traffic (ADT) volumes are illustrated in Figure 10.B. Future (year 2027) traffic volumes were provided by the Sacramento Area Council of Governments (SACOG) and are from the regional traffic model utilized by SACOG. The year 2027 was selected because it was the horizon year utilized in the traffic model at the time of preparation of the traffic analysis. Year 2027 daily traffic volume forecasts are illustrated in Figure 10.C.

Level of Service (LOS) is a general measure of traffic operating conditions whereby a letter grade, from A (the best) to F (the worst), is assigned. These grades represent the perspective of drivers and are an indication of the comfort and convenience associated with driving. The LOS grades, as generally defined by the Highway Capacity Manual³, are:

- LOS A describes primarily free-flow operations at average travel speeds. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at signalized intersections is minimal.
- LOS B describes reasonably unimpeded operation at average travel speeds. The ability to maneuver within the traffic stream is only slightly restricted and control delays at signalized intersections are not significant.
- LOS C describes stable operations; however, ability to maneuver and change lanes in midblock locations may be more restricted than at LOS B. Longer queues, adverse signal coordination, or both may contribute to lower average travel speeds.
- LOS D borders on a range in which small increases in flow may cause substantial increases in delay and decreases in travel speed.
- LOS E is characterized by significant delays and represents operating conditions at or near capacity.
- LOS F is characterized by urban street flow at extremely low speeds. Intersection congestion is likely at critical signalized locations, with high delays, high volumes, and extensive queuing. This condition exists wherever the volume of traffic exceeds the capacity of the roadway.

³ Transportation Research Board, *Highway Capacity Manual*, 2000.



LSA

FIGURE 10.B



LEGEND

XX,XXX - Average Daily Traffic Volumes

* - Average Daily Traffic Not Available

Folsom Lake State Recreation Area & Folsom Powerhouse State Historic Park Existing Daily Traffic Volumes

NOT TO SCALE

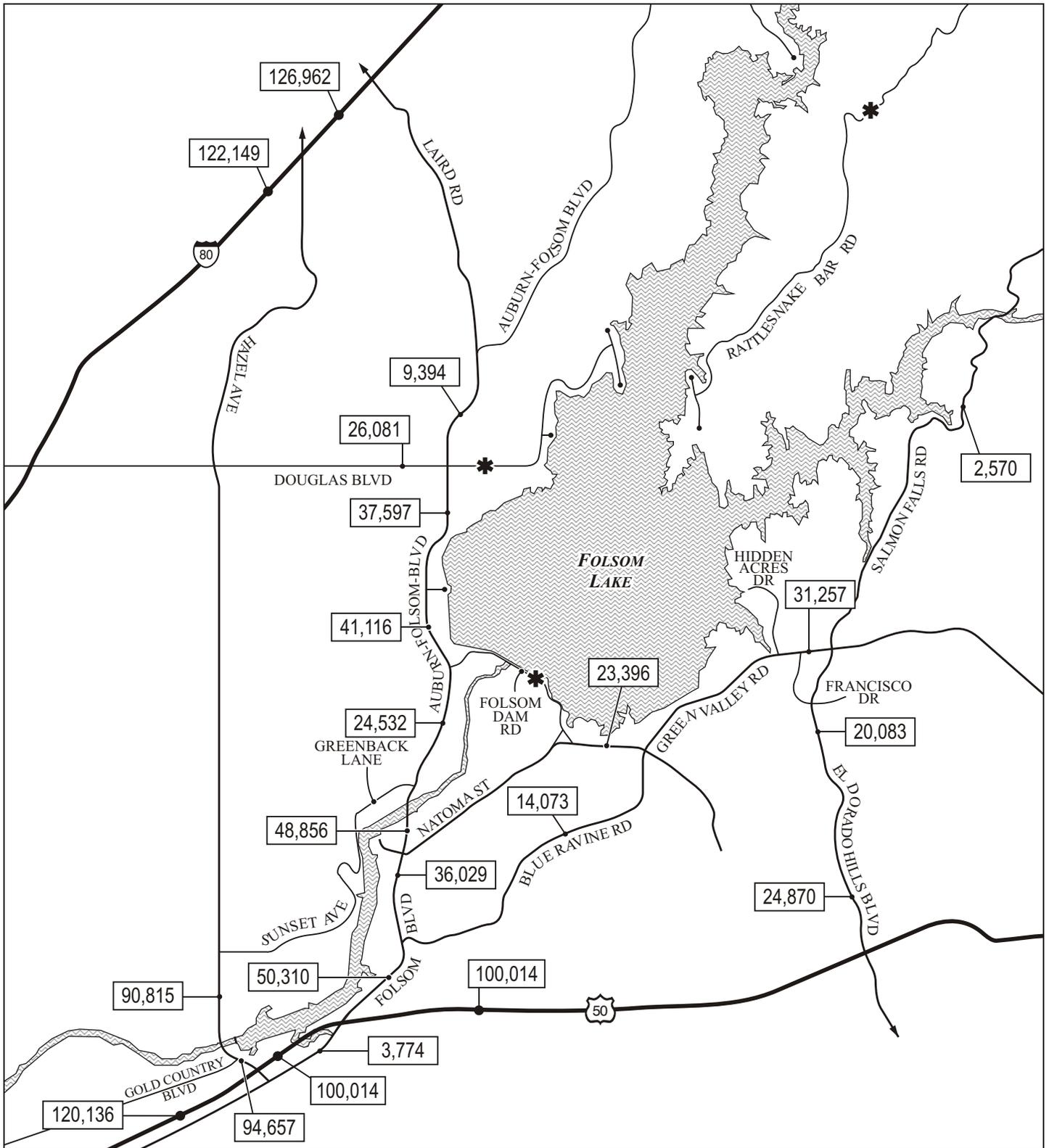


FIGURE 10.C

LSA



LEGEND

XX,XXX - Average Daily Traffic Volumes

* - Future Average Daily Traffic Not Available

NOT TO SCALE

Folsom Lake State Recreation Area &
Folsom Powerhouse State Historic Park
2027 Daily Traffic Volumes

Traffic volumes in the general Folsom Lake SRA area are largely comprised of trips originating from the surrounding communities and residential neighborhoods, as well as the SRA. Traffic has steadily increased over the last 20 years due to region-wide growth and development. While trips generated by Folsom Lake SRA contribute to the overall traffic congestions in the area, the use levels at Folsom Lake SRA have been relatively flat over that time period. In the last five to ten years, traffic demand has increased at a higher rate due to the dramatic growth in the City of Folsom, Citrus Heights, Roseville, Rocklin and El Dorado Hills. Traffic associated with the SRA has remained fairly constant over this period contributing to congestion during the summer months, especially during the weekend periods. Roadway improvements in the region (e.g. Green Valley Road, Folsom-Auburn Boulevard) have occurred in response to the growth in these communities, generally overshadowing the narrow window of traffic demand created by the SRA.

As mentioned above, roadway improvements continue to be planned by local agencies in anticipation of long-term growth projections. In the region, approved Specific Plans continue to be implemented generating continuous growth and causing increased congestion. In the City of Folsom, in light of approaching buildout conditions, the City is considering an expansion of corporate boundaries to accommodate the growth philosophy present in the City's political strategies.

Using the volumes and the daily capacities of each roadway segment, the existing and 2027 volume-to-capacity (v/c) ratios and daily levels of service (LOS) were determined. The theoretical daily capacities were based on the Highway Capacity Manual 2000 Service Volumes for Urban Streets (Exhibit 10-7), and LOS Criteria for Basic Freeway Segments (Exhibit 23-2) for two-lane suburban arterials (i.e., 1,770), four-lane suburban arterials (3,550), six-lane suburban arterials (i.e., 5,330), and six-lane freeways (12,540). The peak hour LOS thresholds are considered as 10 percent of the daily LOS threshold. Therefore, the daily roadway capacities are 17,700 vehicles per day, 35,500 vehicles per day, 53,300 vehicles per day, and 125,400 vehicles per day for two-lane, four-lane, and six-lane roadways, and six-lane freeways, respectively, for roadways within the vicinity of the Unit. The relationship of v/c ratios to LOS is demonstrated below.

Level of Service	V/C Ratio	Level of Service	V/C Ratio
A	0.00–0.60	D	0.81–0.90
B	0.61–0.70	E	0.91–1.00
C	0.71–0.80	F	> 1.00

The existing (2005) baseline v/c ratios are presented in Table 10.A. As shown in the table, the following roadway segments currently operate at LOS E or F:

- Hazel Avenue (south of Sunset Avenue)
- Hazel Avenue (north of US-50)
- Folsom Boulevard (south of Blue Ravine Road)
- Green Valley Road (west of Salmon Falls Road)
- El Dorado Hills Boulevard (north of US-50)
- US-50 (west of Hazel Avenue)
- US-50 (west of Folsom Boulevard)

The 2027 baseline v/c ratios are presented in Table 10.B. As shown in the table, the following roadway segments are forecast to operate at LOS E or F:

- Hazel Avenue (south of Sunset Avenue)
- Hazel Avenue (north of US-50)
- Auburn-Folsom Road (south of Douglas Boulevard)
- Auburn-Folsom Road (north of Folsom Dam Road)
- Folsom Boulevard (south of Greenback Lane)
- Folsom Boulevard (south of Natoma Street)
- Folsom Boulevard (south of Blue Ravine Road)
- East Natoma Street (west of Green Valley Road)
- I-80 (east of Hazel Avenue)
- I-80 (west of Hazel Avenue)
- US-50 (west of Hazel Avenue)

Table 10.A: Existing Daily Traffic Volumes and Volume to Capacity Ratios

Roadway	Segment	Capacity	Existing Baseline			With Current General Plan			With Preferred Concept			With Alternative A			With Alternative B		
			ADT	V/C	LOS	ADT	V/C	LOS	ADT	V/C	LOS	ADT	V/C	LOS	ADT	V/C	LOS
Hazel Avenue	south of Sunset Avenue	35,500	37,159	1.05	F	37,677	1.06	F	37,630	1.06	F	38,337	1.08	F	37,159	1.05	F
	north of US-50	35,500	39,302	1.11	F	40,357	1.14	F	40,310	1.14	F	40,480	1.14	F	39,839	1.12	F
	north of Douglas Boulevard	17,700	14,542	0.82	D	15,257	0.86	D	14,542	0.82	D	14,862	0.84	D	14,542	0.82	D
Auburn-Folsom Road	south of Douglas Boulevard	35,500	23,866	0.67	B	25,385	0.72	C	23,866	0.67	B	23,962	0.67	B	23,866	0.67	B
	north of Folsom Dam Road	35,500	22,101	0.62	B	23,258	0.66	B	22,101	0.62	B	22,197	0.63	B	22,101	0.62	B
	south of Folsom Dam Road	35,500	20,333	0.57	A	21,490	0.61	B	20,333	0.57	A	20,429	0.58	A	20,333	0.57	A
	south of Greenback Lane	35,500	31,023	0.87	D	32,260	0.91	E	31,141	0.88	D	31,237	0.88	D	31,141	0.88	D
Folsom Boulevard	south of Natoma Street	35,500	31,129	0.88	D	32,487	0.92	D	31,488	0.89	D	31,825	0.90	D	31,488	0.89	D
	south of Blue Ravine Road	35,500	34,855	0.98	E	36,936	1.04	F	35,937	1.01	F	36,274	1.02	F	35,164	0.99	E
Douglas Boulevard	east of Auburn-Folsom Road	17,700	10,398	0.59	A	12,688	0.72	C	10,398	0.59	A	10,639	0.60	B	10,398	0.59	A
	west of Auburn-Folsom Road	35,500	25,907	0.73	C	27,064	0.76	C	25,907	0.73	C	26,004	0.73	C	25,907	0.73	C
Rattlesnake Bar Road	west of SR-49	17,700	1,015	0.06	A	1,307	0.07	A	1,083	0.06	A	1,287	0.07	A	1,083	0.06	A
Salmon Falls Road	north of Green Valley Road	17,700	2,696	0.15	A	3,129	0.18	A	2,696	0.15	A	2,696	0.15	A	2,696	0.15	A
East Natoma Street	west of Green Valley Road	17,700	14,208	0.80	D	14,329	0.81	D	14,449	0.82	D	14,690	0.83	D	14,449	0.82	D
Blue Ravine Road	east of Folsom Boulevard	35,500	14,325	0.40	A	14,325	0.40	A	14,325	0.40	A	14,325	0.40	A	14,325	0.40	A
Green Valley Road	west of Salmon Falls Road	17,700	18,104	1.02	F	18,491	1.04	F	18,104	1.02	F	19,310	1.09	F	18,104	1.02	F
	south of Francisco Drive	35,500	11,828	0.33	A	12,215	0.34	A	11,828	0.33	A	13,034	0.37	A	11,828	0.33	A
El Dorado Hills Boulevard	north of US-50	35,500	37,923	1.07	F	38,310	1.08	F	37,923	1.07	F	39,129	1.10	F	37,923	1.07	F
	east of Hazel Avenue	125,400	96,000	0.77	C	96,000	0.77	C	96,000	0.77	C	96,204	0.77	C	96,000	0.77	C
I-80	west of Hazel Avenue	125,400	96,000	0.77	C	96,000	0.77	C	96,000	0.77	C	96,204	0.77	C	96,000	0.77	C
	west of Hazel Avenue	125,400	127,000	1.01	F	128,714	1.03	F	128,567	1.03	F	129,853	1.04	F	127,672	1.02	F
US-50	west of Folsom Boulevard	125,400	116,000	0.93	E	117,187	0.93	E	117,063	0.93	E	118,263	0.94	E	116,410	0.93	E
	east of Folsom Boulevard	125,400	79,000	0.63	B	79,765	0.64	B	79,513	0.63	B	80,554	0.64	B	79,224	0.63	B

NOTE:
 Shaded V/C ratios exceed LOS D
 - Indicates Significant Impact

Table 10.B: Year 2027 Daily Traffic Volumes and Volume to Capacity Ratios

Roadway	Segment	Capacity	2027 Baseline			With Current General Plan			With Preferred Concept			With Alternative A			With Alternative B		
			ADT	V/C	LOS	ADT	V/C	LOS	ADT	V/C	LOS	ADT	V/C	LOS	ADT	V/C	LOS
Hazel Avenue	south of Sunset Avenue	35,500	90,815	2.56	F	91,333	2.57	F	91,286	2.57	F	91,993	2.59	F	90,815	2.56	F
	north of US-50	35,500	94,657	2.67	F	95,712	2.70	F	95,665	2.69	F	95,835	2.70	F	95,194	2.68	F
	north of Douglas Boulevard	17,500	9,394	0.54	A	10,109	0.58	A	9,394	0.54	A	9,714	0.56	A	9,394	0.54	A
Auburn-Folsom Road	south of Douglas Boulevard	35,500	37,597	1.06	F	39,116	1.10	F	37,597	1.06	F	37,693	1.06	F	37,597	1.06	F
	north of Folsom Dam Road	35,500	41,116	1.16	F	42,273	1.19	F	41,116	1.16	F	41,212	1.16	F	41,116	1.16	F
	south of Folsom Dam Road	35,500	24,532	0.69	B	25,689	0.72	C	24,532	0.69	B	24,628	0.69	B	24,532	0.69	B
Folsom Boulevard	south of Greenback Lane	35,500	48,856	1.38	F	50,093	1.41	F	48,924	1.38	F	49,070	1.38	F	48,974	1.38	F
	south of Natoma Street	35,500	36,029	1.01	F	37,387	1.05	F	36,338	1.02	F	36,725	1.03	F	36,388	1.03	F
	south of Blue Ravine Road	35,500	50,310	1.42	F	52,391	1.48	F	51,392	1.45	F	51,729	1.46	F	50,669	1.43	F
Douglas Boulevard	east of Auburn-Folsom Road	17,700	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	west of Auburn-Folsom Road	35,500	26,081	0.73	C	27,238	0.77	C	26,081	0.73	C	26,178	0.74	C	26,081	0.73	C
Rattlesnake Bar Road	west of SR-49	17,700	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Salmon Falls Road	north of Green Valley Road	17,700	2,570	0.15	A	3,003	0.17	A	2,570	0.15	A	2,570	0.15	A	2,570	0.15	A
East Natoma Street	west of Green Valley Road	17,700	23,396	1.32	F	23,517	1.33	F	23,637	1.34	F	23,878	1.35	F	23,637	1.34	F
Blue Ravine Road	east of Folsom Boulevard	35,500	14,073	0.40	A	14,073	0.40	A	14,073	0.40	A	14,073	0.40	A	14,073	0.40	A
Green Valley Road	west of Salmon Falls Road	35,500	31,257	0.88	D	31,644	0.89	D	31,257	0.88	D	32,463	0.91	D	31,257	0.88	D
El Dorado Hills Boulevard	south of Francisco Drive	35,500	20,083	0.57	A	20,470	0.58	A	20,083	0.57	A	21,289	0.60	A	20,083	0.57	A
	north of US-50	35,500	24,870	0.70	C	25,257	0.71	C	24,870	0.70	C	26,076	0.73	C	24,870	0.70	C
I-80	east of Hazel Avenue	125,400	126,962	1.01	F	126,962	1.01	F	126,962	1.01	F	127,166	1.01	F	126,962	1.01	F
	west of Hazel Avenue	125,400	122,149	0.97	E	122,149	0.97	E	122,149	0.97	E	122,353	0.98	E	122,149	0.97	E
	west of Hazel Avenue	125,400	120,136	0.96	E	121,850	0.97	E	121,703	0.97	E	122,989	0.98	E	120,808	0.96	E
US-50	west of Folsom Boulevard	125,400	100,014	0.80	C	101,201	0.81	D	101,077	0.81	D	102,277	0.82	D	100,417	0.80	D
	east of Folsom Boulevard	135,000	100,014	0.74	C	100,779	0.75	C	100,537	0.74	C	101,568	0.75	C	100,238	0.74	C

NOTE:

Shaded V/C ratios exceed LOS D

- Indicates Significant Impact

4.4.10.2 Significance Criteria and Evaluation Methodology

Potential significant impacts associated with traffic/transportation have been evaluated using the following criteria based on the CEQA Guidelines (Sections 15000-15387). The adoption and implementation of the project would have a significant effect on transportation if it would:

- TRAFFIC-a** Cause the operation level of a roadway segment to deteriorate from LOS D (or better) to LOS E or F;
- TRAFFIC-b** Increase traffic volume on a roadway segment already operating at LOS E or F by more than 5 percent.

4.4.10.3 Environmental Evaluation and Mitigation Measures

To evaluate potential effects of the proposed project, a two-tiered analysis was prepared. First, each management zone was evaluated to determine its potential to generate vehicle trips which could impact surrounding roadways. Second, the vehicle trips from each zone were added to the existing and year 2027 baseline traffic volumes to determine the magnitude of effect that the project traffic would have on surrounding roadways. It should be noted that because of the nature of the project, the description of proposed improvements is very general and not sufficient for a “project” level traffic analysis.

Instead, this section presents a “program” level analysis, intended to disclose general levels of potential traffic impact and identify areas where further study is needed once a more defined project description is developed.

The proposal for each management zone has been evaluated to determine its potential effect upon the surrounding roadways. These effects are summarized in Table 10.C. Management zones that generate more than 500 daily trips are considered to have a “High” effect. Management zones that generate between 50 and 500 daily trips are considered to have a “Moderate” effect, while those that generate fewer than 50 daily trips would have a “Low” effect. For all alternatives the traffic volumes from management zones that have an evaluation of “High” effect or “Moderate” effect are distributed to the study area roadways to more fully evaluate whether they would have a significant impact on study area roadways. For purposes of this analysis, any management zone considered to have a “High” effect would need to be further evaluated once each specific project is defined and ready to be implemented, as the project description developed for the Plan does not include specific items such as access locations, driveway design, hours of operation, and in some cases specific land uses. Where necessary, mitigation measures are presented to reduce potential impacts.

Table 10.C: TRAFFIC/CIRCULATION IMPACTS EVALUATION

<i>Park-Wide Goals and Guidelines</i>				
Resource	No Project	Preferred Alternative	Alternative A	Alternative B
Invasive Exotic Plant Species	No Impact	No Impact	No Impact	No Impact
Vegetation Management	No Impact	No Impact	No Impact	No Impact
Cultural Resource Management	No Impact	High	High	High
Wildlife Management	No Impact	No Impact	No Impact	No Impact
Watershed/Water Quality Management	No Impact	No Impact	No Impact	No Impact
Visual Resources	No Impact	No Impact	No Impact	No Impact
Unitwide Interpretation	High	High	High	High
Visitor Services			see below	
Visitor Capacity			see below	
Park Operations			see below	
<i>Specific Area Goals and Guidelines</i>				
Management Zone	No Project	Preferred Alternative	Alternative A	Alternative B
Nimbus Dam	No Impact	No Impact	No Impact	No Impact
Nimbus Flat/Shoals	High	High	Low	High
Lake Overlook	Low	Low	Low	Low
Mississippi Bar	Moderate	Moderate	High	No Impact
Negro Bar	No Impact	Moderate	Moderate	Moderate
Natoma Canyon	No Impact	Low	Low	Low
Folsom Powerhouse	Moderate	Moderate	Moderate	Moderate
Natoma Shore North	No Impact	No Impact	No Impact	No Impact
Natoma Shore South	High	High	High	No Impact
Lower Lake Natoma (AQ)	No Impact	No Impact	No Impact	No Impact
Upper Lake Natoma (AQ)	No Impact	No Impact	No Impact	No Impact
Folsom Dam	No Impact	No Impact	No Impact	No Impact
Beals Point	No Impact	Low	Low	Low
Mooney Ridge	High	No Impact	No Impact	No Impact
Granite Bay South	High	Low	Low	No Impact
Granite Bay North	High	No Impact	Moderate	Low
Placer Shore	No Impact	No Impact	No Impact	No Impact
Rattlesnake Bar	Moderate	Low	Moderate	No Impact
North Fork Shore	Low	No Impact	No Impact	No Impact
Anderson Island	No Impact	No Impact	No Impact	No Impact
Peninsula	Moderate	Moderate	Moderate	Moderate
Darrington	No Impact	No Impact	No Impact	No Impact
Skunk Hollow/Salmon Falls	Moderate	No Impact	No Impact	No Impact
El Dorado Shore	Moderate	No Impact	Low	Low
Brown's Ravine	Low	Low	High	Low
Mormon Island Cove	Low	No Impact	High	No Impact
Mormon Island Preserve	Low	Low	Low	Low
Folsom Point	Moderate	Moderate	Moderate	High
Folsom Lake (AQ)	No Impact	No Impact	No Impact	No Impact
Middle North Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Upper North Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Middle South Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Upper South Fork (AQ)	No Impact	No Impact	No Impact	No Impact

TRIP GENERATION

Generally, for the purpose of traffic impact analysis, vehicle trips are generated using standardized trip rates, such as those found in the Institute of Transportation Engineers, Trip Generation manual. These rates are based on a particular land use variable, such as square footage of retail space, or number of apartment units. For unique uses such as the recreation amenities found within the Folsom SRA management zones, standardized trip rates may not be available, making it necessary to identify another source of trip generation information.

In the existing condition, the Folsom SRA management zones generate vehicle trips during the weekdays and weekends. Each management zone has different trip generating characteristics. For example, vehicle trips at Nimbus Flat are primarily generated by activities related to the CSUS aquatic program, while vehicle trips at Willow Creek or Skunk Hollow/Salmon Falls are generated by the ability to launch non-motorized boats, such as kayaks. Because the management zones generate trips in the existing condition, it is possible to identify trip rates for the recreational uses by observing the existing trip generation within different management zones.

To identify the existing vehicle trips, daily trip generation surveys were taken at 4 management zones within the Folsom SRA. The counts covered a three-day period over a weekend (i.e., Friday-Saturday-Sunday), June 20-22, 2003. The management zones surveyed, along with their existing facilities, are as follows:

- Brown's Ravine – 122 day-use parking spaces, 603 launch parking spaces, 7 launch lanes, snack bar/marine provisions, fuel station, boating equipment rental, picnic tables, trail staging area and access.
- Peninsula Campground – 60 day-use parking spaces, 50 launch parking spaces, 2 launch lanes, 104 campsites, restroom, picnic area, trail access.
- Nimbus Flat – CSUS Aquatic Center, 230 day-use parking spaces, 3 launch lanes, 2 docks, unguarded swim beach, picnic area, trail access.
- Skunk Hollow/Salmon Falls – 82 parking spaces, picnic area, toilets, trail access, raft drying rails.

The three days of average daily traffic (ADT) documented during the survey was averaged to determine the average ADT for each management zone. Dividing this average by the total parking capacity (i.e., 1 vehicle per parking space, 1 vehicle per campsite, 10 vehicles per group campsite), LSA determined a daily trip rate for each location. Vehicle trip rates were based on parking capacity, rather than the actual trip generating facility (i.e., launch lanes,

restrooms, trailheads, etc.) because in most cases, the trip generation will be related to the parking capacity of each management zone. Trip generation of specific uses, such as picnic sites, could vary from 1 vehicle per site to several vehicles. Therefore, total parking capacity provides a more practical variable for trip generation potential of a site.

It should be noted that some margin for potential error exists in the trip generation surveys. This is due to the fact that the surveys provide a “snapshot” of the operation of the management zone only on the days surveyed. It is possible that attendance will vary from weekend to weekend and throughout the year. However, the surveys to provide an estimate of vehicle trips that is more accurate for the specific uses within the Folsom SRA than generic trip generation rates for park uses contained in the ITE Trip Generation Manual.

There are 33 total management zones within the Folsom SRA. The derived rates, as shown in Table 10.D, were applied to the 29 management zones that were not surveyed based on similarities of amenities and facilities (i.e., campsites, picnic sites, launch lanes, trail access). In order to forecast the traffic impacts at each management zone, the applicable daily trip rate was multiplied by the increase in facilities associated with each scenario. This approach provides a conservative evaluation as each management location is assumed to be at full capacity. It should be noted that the proposal for each management zone may not generate vehicle trips. For example, provision of interpretive displays or measures provided for resource protection would not necessarily increase the vehicle trips at a management zone. The specific proposal of each area was reviewed to determine where vehicle trips were likely to increase. The trip generation summary for management zones with the potential to generate moderate or high impacts is shown in Table 10.E for all scenarios.

Table 10.D: Trip Generation Rates

<i>Management Zone</i>	<i>Existing ADT¹</i>	<i>Existing Parking²</i>	<i>Daily Trip Rate³</i>
Nimbus Flat	1,235	230	5.37
Peninsula	291	214	1.36
Skunk Hollow/Salmon Falls	386	82	4.71
Brown's Ravine	1,744	725	2.41

NOTES:

¹ Existing ADT counts taken over a 3-day weekend (Fri-Sat-Sun) period and averaged.

² Parking capacity is assumed to be 1 vehicle per day-use/launch space, 1 vehicle per campsite, 10 vehicles per group campsite. See Alternatives Matrix (Appendix A of the General Plan) for details of each management zone.

³ Daily Trip Rate = Existing ADT / Existing Parking

Table 10.E: TRIP GENERATION SUMMARY BY MANAGEMENT ZONE

Management Zone	Daily Trip Rate ¹	<i>No Project/Current General Plan</i>		<i>Preferred Alternative</i>		<i>Alternative 3</i>		<i>Alternative 4</i>	
		Parking ²	ADT ³	Parking ²	ADT ³	Parking ²	ADT ³	Parking ²	ADT ³
Nimbus Flat/Shoals ⁴	5.37	100	537	100	537	-	-	100	537
Mississippi Bar ⁶	4.71	100	471	100	471	250	1,178	-	-
Negro Bar	N/A	-	-	Negro Bar Cultural Center will add approximately 50 ADT		Negro Bar Cultural Center will add approximately 50 ADT		Negro Bar Cultural Center will add approximately 50 ADT	
Folsom Powerhouse ⁵	1.36	80	109	50	68	50	68	50	68
Natoma Shore South	2.41	300	723	300	723	300	723	-	-
Mooney Ridge ⁷	2.41	250	603	-	-	-	-	-	-
Granite Bay South ⁷	2.41	700	1,687	-	-	-	-	-	-
Granite Bay North ⁷	2.41	250	603	-	-	100	241	-	-
Rattlesnake Bar ⁶	1.36	100	136	-	-	200	272	-	-
Peninsula ⁵	1.36	215	292	50	68	100-200	136-272	50	68
Skunk Hollow/Salmon Falls	4.71	60	283	-	-	-	-	-	-
El Dorado Shore ⁵	1.36	110	150	-	-	-	-	-	-
Brown's Ravine	2.41	-	-	-	-	250	603	-	-
Mormon Island Cove	1.36	30	41	-	-	Marina expansion will add approximately 603 ADT		-	-
Folsom Point	2.41	50	121	100	241	200	482	100	241

NOTES:

- denotes No impact or Low impact. Only scenarios with a Moderate or High impact as noted in Table 10.D have been evaluated.

¹ daily trip rate used at each management zone reflects similarities with facilities/amenities provided at the 4 management zones as shown in Table 10.A.

² Parking capacity is assumed to be 1 vehicle per day-use/launch space, 1 vehicle per campsite, 10 vehicles per group campsite.

See Alternatives Matrix (Appendix A of the General Plan) for details at each management zone.

³ ADT = Daily Trip Rate * Parking

⁴ Trips generated using trip rates identified at Nimbus Flat (5.37 trips/parking space).

⁵ Trips generated using trip rates identified at Peninsula (1.36 trips/parking space).

⁶ Trips generated using trip rates identified at Skunk Hollow/Salmon Falls (4.71 trips/parking space).

⁷ Trips generated using trip rates identified at Brown's Ravine (2.41 trips/parking space).

4.4.10.3.1 Guidelines

The Plan contains the following specific guideline to reduce or eliminate potential adverse impacts associated with the generation of increased vehicle trips that would increase congestion on local roadways:

- Guideline SUSTAIN-1: *Sustainable Sites*: Minimize the negative environmental impacts associated with site enhancement, development, maintenance, and operations activities by considering the following guideline when implementing the Plan:
- Facilitate access to public transportation in order to provide an alternative to the private automobile.

4.4.10.3.2 Impacts

Impact TRAFFIC-1: Based on the program level of review, implementation of the Plan would allow the development of additional facilities and site improvements that could generate increased vehicle trips on area roadways that would cause levels of service to deteriorate (Significance Criteria TRAFFIC-a and TRAFFIC-b).

To determine the impact of the proposed General Plan for each “High” and “Moderate” effect management zone, the trip generation potential of each management area was added to the existing and forecast year daily traffic volumes illustrated on Figures 10.B and 10.C. The potential increase in daily traffic was examined to determine whether the impact would be significant.

Mitigation Measure TRAF-1a: To ensure that all traffic impacts resulting from implementation of the proposed program-level Plan are mitigated, traffic impact analyses shall be prepared for any individual project identified as a potential “high” impact in Table 10.C. Project-specific traffic impact analyses shall be prepared in accordance with all applicable provisions of CEQA. When developing the scope of work for each individual traffic study, the standards and procedures of the applicable local agency shall be consulted and applied as necessary. The traffic study shall assess the affects of each project, as well as cumulative projects, and propose fair share mitigation measures as applicable.

Mitigation Measure TRAF-1b: The implementation of Alternative 3 would create additional traffic that could result in significant impacts to roadway segments in the existing plus project condition. These impacts have been identified based on a worst-case analysis which assumes that all management zones are implemented at the same

time and that no operational improvements or mitigating actions are included as part of the project description. Currently, the DPR takes the following mitigating actions to address traffic problems and congestion during peak season weekends:

Public service announcements and press releases when Beal's Point and Granite Bay fill to notify people to arrive early and/or use alternate areas;

- Use of changeable electronic message signs along Auburn Folsom Road and Douglas Boulevard to inform the public when Beal's Point and Granite Bay areas are full;
- Closure of Beal's Point and Granite Bay day use areas when parking capacity fills;
- Use of State Park Rangers and other staff to direct traffic circulation at entrance stations at peak use times.

If determined to be necessary through the subsequent traffic analysis required by Mitigation Measure TRAF-1a, roadway improvements, as indicated below, shall mitigate the impacts of Alternative 3. As the proposal for each management area is refined and implemented, subsequent analysis shall be required to confirm the need for recommended improvements and to determine the potential for fair-share participation in each specific park/recreation improvement. Project specific and cumulative impacts could also be reduced or eliminated through modification of the project description to provide less land use intensity than provided for in the General Plan or by implementing mitigation actions, such as those listed above, to reduce the potential traffic impact of the project. Other mitigating actions that could be applied to the project as appropriate include staggering the hours of operation and modifying the location of access points to reduce congestion along local roadways. These mitigating actions shall be considered part of the project and evaluated in the subsequent traffic analysis required in Mitigation Measure TRAF-1a. If significant project impacts on the indicated roadway segments are still identified when a project-specific traffic impact analysis is prepared, then the project shall participate on a fair-share basis in the widening or improvement of the following affected roadway segments.

No Project/Current General Plan

- Folsom Boulevard south of Blue Ravine Road – Widen to 6 Lane Arterial

Alternative 3

- Green Valley Road west of Salmon Falls Road – Widen to 4 Lane Arterial

The following trip generation discussion assesses the level of significance for each alternative as it pertains to **Impact TRAFFIC-1**.

EXISTING 2006 CONDITIONS PLUS PROPOSED PROJECT

The traffic volumes generated by each management area were distributed to the surrounding roadways based upon their proximity to other land uses and regional transportation facilities. The project trips were then added to the existing traffic volumes and evaluated to determine whether the proposed land uses would significantly impact any study area roadway segment. As discussed previously, the existing baseline v/c ratios and corresponding LOS are presented in Table 10.A. This section will discuss the impacts of the proposed project under the No Project, Preferred Alternative, Alternative 3, and Alternative 4 scenarios for those management zones with quantifiable trip generation potential.

Existing with No-Project/Current General Plan

Under the No-Project/Current General Plan, 8 roadway segments are forecast to exceed LOS D and operate at unsatisfactory LOS. The existing with No-Project/Current General Plan daily traffic volumes are illustrated in Figure 10.D. As shown in Table 10.A, at Folsom Boulevard (south of Blue Ravine Road), the Current General Plan trips would increase the ADT by more than five percent. Further implementation of the existing General Plan would be subject to Mitigation Measure TRAF-1a, thereby mitigating the potential impacts of each management zone.

Existing with Preferred Alternative

Under the Preferred Alternative, the same 7 roadway segments that exceed LOS D in the existing baseline condition are forecast to continue operating at unsatisfactory LOS. The existing with Preferred Alternative daily traffic volumes are illustrated in Figure 10.E.

Although these trips represent a moderate increase from the existing baseline condition, the Preferred Alternative does not result in a significant traffic impact. The LOS does not deteriorate from LOS D to LOS E or F, and the forecast project trips do not increase the

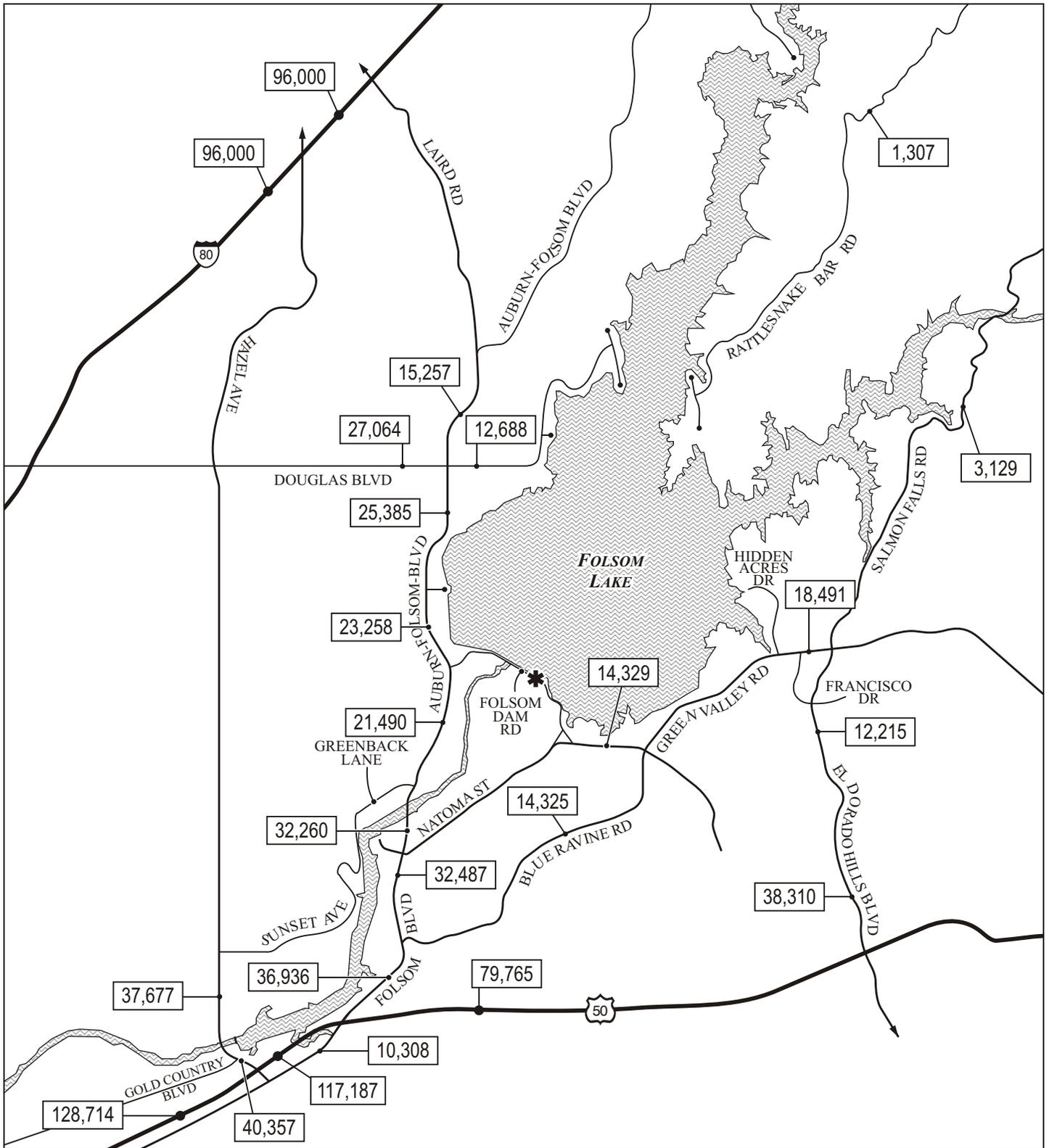


FIGURE 10.D

LSA

LEGEND

XX,XXX - Average Daily Traffic Volumes

* - Average Daily Traffic Not Available



NOT TO SCALE

Folsom Lake State Recreation Area &
Folsom Powerhouse State Historic Park
Existing with No-Project/Current General Plan
Daily Traffic Volumes

ADT by 5 percent or greater for any of the roadway segments within the vicinity of the management zones. Potential impacts of this alternative would be mitigated by Mitigation Measure TRAF-1a.

Existing with Alternative 3

Under Alternative 3, the same 7 roadway segments that exceed LOS D in the existing baseline condition are forecast to continue operating at unsatisfactory LOS. The existing with Alternative 3 daily traffic volumes are illustrated in Figure 10.F. The addition of project trips from Alternative 3 results in a significant traffic impact at one location: Green Valley Road (west of Salmon Falls Road). The addition of traffic from Alternative 3 would increase the ADT by 5 percent or greater. Improvements to mitigate the impacts of each management zone in the existing plus project condition are identified in Mitigation Measure TRAF-1b.

Existing with Alternative 4

Under Alternative 4, the same 7 roadway segments that exceed LOS D in the existing baseline condition are forecast to continue operating at unsatisfactory LOS. The existing with Alternative 4 daily traffic volumes are illustrated in Figure 10.G. Although these trips represent a moderate increase from the existing baseline condition, Alternative 4 does not result in a significant traffic impact. The LOS does not deteriorate from LOS D to LOS E or F, and the forecast project trips do not increase the ADT by 5 percent or greater for any of the roadway segments within the vicinity of the management zones. Potential impacts of this alternative would be mitigated by Mitigation Measure TRAF-1a.

YEAR 2027 PLUS PROPOSED PROJECT

Project trips were added to the 2027 baseline traffic volumes and evaluated to determine whether the proposed land uses would significantly impact any study area roadway segment. As discussed previously, the 2027 baseline v/c ratios and corresponding LOS are presented in Table 10.B. This section will discuss the cumulative impacts of the proposed project for all 33 management zones under the No Project, Preferred Alternative, Alternative 3, and Alternative 4 scenarios.

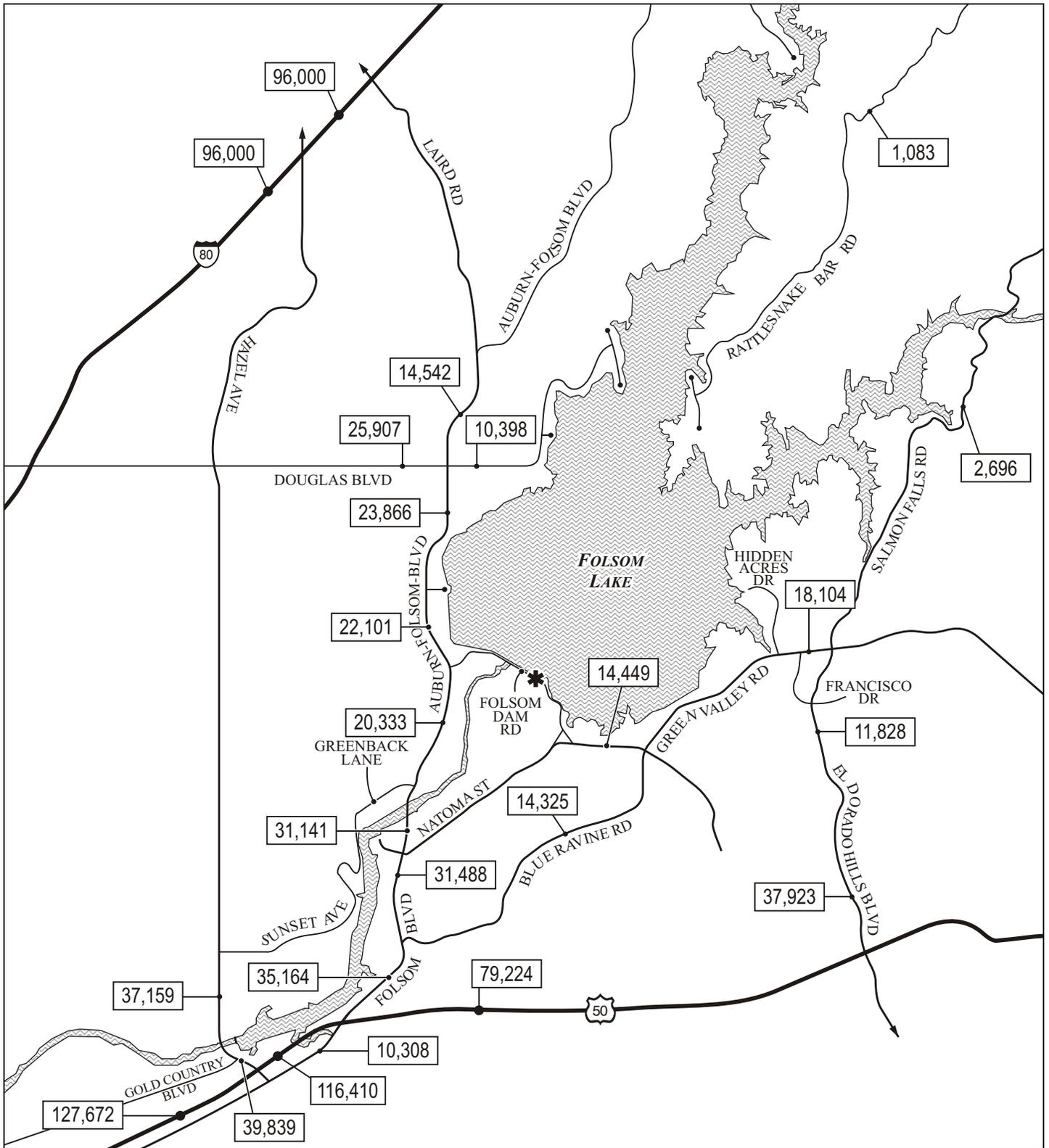


FIGURE 10.G

LSA



LEGEND

XX,XXX - Average Daily Traffic Volumes

* - Average Daily Traffic Not Available

Folsom Lake State Recreation Area & Folsom Powerhouse State Historic Park

Existing with Alternative 4 Daily Traffic Volumes

NOT TO SCALE

Year 2027 with No-Project/Current General Plan

Under the No-Project/Current General Plan, the same 11 roadway segments that exceed LOS D in the 2027 baseline condition are forecast to continue operating at unsatisfactory LOS. The 2027 with No-Project/Current General Plan daily traffic volumes are illustrated in Figure 10.H. Although these trips represent a moderate increase from the 2027 baseline condition, the Preferred Alternative does not result in a significant traffic impact. The LOS does not deteriorate from LOS D to LOS E or F, and the forecast project trips do not increase the ADT by 5 percent or greater for any of the roadway segments within the vicinity of the management zones. Further implementation of the existing General Plan would be subject to Mitigation Measure TRAF-1a, thereby mitigating the potential impacts of each management zone.

Year 2027 with Preferred Alternative

Under the Preferred Alternative, the same 11 roadway segments that exceed LOS D in the 2027 baseline condition are forecast to continue operating at unsatisfactory LOS. The 2027 with Preferred Alternative daily traffic volumes are illustrated in Figure 10.I. Although these trips represent a moderate increase from the 2027 baseline condition, the Preferred Alternative does not result in a significant traffic impact. The LOS does not deteriorate from LOS D to LOS E or F, and the forecast project trips do not increase the ADT by 5 percent or greater for any of the roadway segments within the vicinity of the management zones. Potential impacts of this alternative would be mitigated by Mitigation Measure TRAF-1a.

Year 2027 with Alternative 3

Under Alternative 3, the same 11 roadway segments that exceed LOS D in the 2027 baseline condition are forecast to continue operating at unsatisfactory LOS. The 2027 with Alternative 3 daily traffic volumes are illustrated in Figure 10.J. Although these trips represent a moderate increase from the 2027 baseline condition, Alternative 3 does not result in a significant traffic impact. The LOS does not deteriorate from LOS D to LOS E or F, and the forecast project trips do not increase the ADT by 5 percent or greater for any of the roadway segments within the vicinity of the management zones. Potential impacts of this alternative would be mitigated by Mitigation Measure TRAF-1a.

Year 2027 with Alternative 4

Under Alternative 4, the same 11 roadway segments that exceed LOS D in the 2027 baseline condition are forecast to continue operating at unsatisfactory LOS. The 2027 with Alternative 4 daily traffic volumes are illustrated in Figure 10.K. Although these trips represent a moderate increase from the 2027 baseline condition, Alternative 4 does not result in a significant traffic impact. The LOS does not deteriorate from LOS D to LOS E or F, and the forecast project trips do not increase the ADT by 5 percent or greater for any of the roadway segments within the vicinity of the management zones. Potential impacts of this alternative would be mitigated by Mitigation Measure TRAF-1a.

Impact TRAFFIC-2: Implementation of the Plan would allow the development of additional facilities and site improvements that could create potentially hazardous conditions related to site design features (Significance Criteria TRAFFIC-a and TRAFFIC-b).

Implementation of design features such as overflow parking, reconfigured entries, and road widening would improve traffic operations, but could create unsafe and inefficient vehicular access to and from the parking area and potentially hazardous conditions for pedestrians.

Mitigation Measure TRAF-2: Prior to implementation of overflow parking at Nimbus Flat/Nimbus Shoals, a focused circulation and parking analysis shall be prepared. The focused traffic analysis shall analyze the following:

- Effect of the overflow parking area on local circulation
- Adequacy and safety of access to the parking area
- Pedestrian circulation to/from the overflow parking area to activity centers at Nimbus Flat/Nimbus Shoals.

Measures to ensure adequate circulation, levels of service and vehicular and pedestrian safety shall be identified and implemented prior to the installation and operation of the overflow parking at Nimbus Flat/Nimbus Shoals.

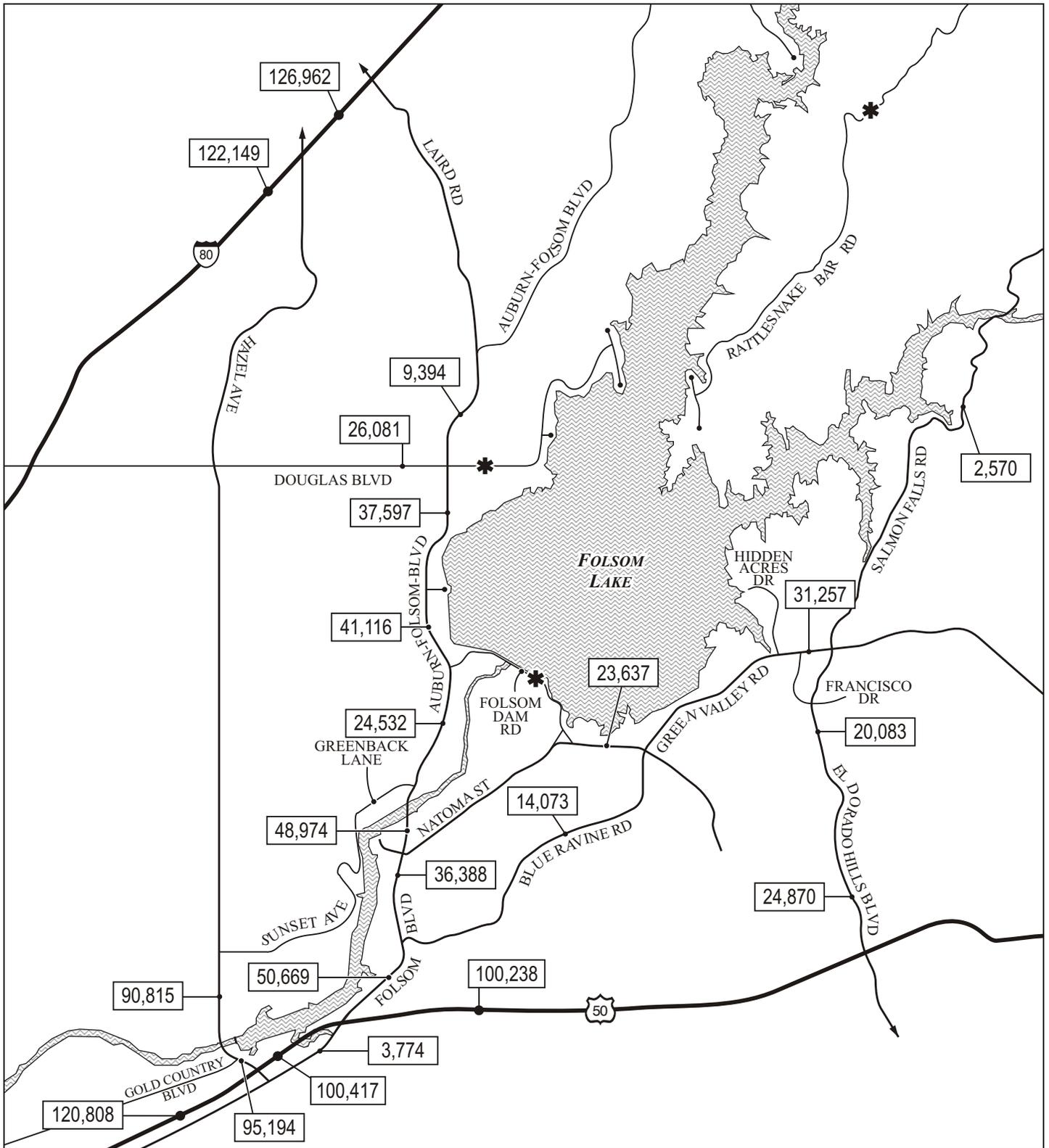
Specific impacts related to traffic and circulation are described below.

PARKWIDE GOALS AND GUIDELINES

Cultural Resources Management

Preferred Alternative, Alternative 3, Alternative 4: High Impact

Implementation of these alternatives would result in the additional development of



LSA

FIGURE 10.K

LEGEND

XX,XXX - Average Daily Traffic Volumes

* - Future Average Daily Traffic Not Available



Folsom Lake State Recreation Area & Folsom Powerhouse State Historic Park

2027 with Alternative 4 Daily Traffic Volumes

NOT TO SCALE

interpretive facilities at various locations within the park that have the potential to generate a considerable amount of traffic. Impacts related to development of these facilities are addressed by management zone in the Specific Area Goals and Guidelines section below.

Unitwide Interpretation

No Project, Preferred Alternative, Alternative 3, Alternative 4: High Impact

Implementation of these alternatives would result in the additional development of interpretive facilities at various locations within the park that have the potential to generate a considerable amount of traffic. Impacts related to development of these facilities are addressed by management zone in the Specific Area Goals and Guidelines section below.

SPECIFIC AREA GOALS AND GUIDELINES

Nimbus Flat/Nimbus Shoals

Nimbus Flat/Nimbus Shoals is located along Lake Natoma, north of SR-50 and east of the Nimbus Dam. Access to Nimbus Flat/Nimbus Shoals is provided off of Hazel Avenue, at Gold Country Boulevard. Existing facilities include the CSUS Aquatic Center, picnic area, bike trails, multi-use trails, and boating. The Aquatic Center consists of indoor and outdoor boat storage, an administration building, paddling put-ins/docks, and a small beach area. The picnic area consists of picnic tables and barbecues with two restrooms. The boating facility includes three launch lanes and two docks. A total of 230 day use parking spaces are provided. The existing trip generation of this management zone, based on existing surveys, is 1,235 daily trips.

No Project, Preferred Alternative, Alternative 4: High Impact

The land uses proposed in the current General Plan and in these alternatives which have not yet been built include 40 picnic sites, 100 parking spaces and additional bike trails. When the observed daily trip rate is applied to 100 new parking spaces, an increase of 537 daily trips is forecast as shown in Table 10.E. The proposed additional amenities have the potential to increase traffic from the level currently experienced in the existing condition. Because the Current General Plan and these alternatives have the potential to generate more than 500 daily trips, traffic impacts associated with implementation of these alternatives are considered high. Implementation of Mitigation Measure TRAF-1a would ensure that traffic impacts caused by the proposal are mitigated to a less than significant level.

Preferred Alternative: High Impact

In addition to the proposed development described above, the Preferred Alternative proposes to provide overflow parking for special events on Bureau of Reclamation (or Reclamation? I forget which shorthand we used) land across Hazel Avenue. Overflow parking would be used for special events at the CSUS Aquatic Center, which typically consist of rowing competitions held on the weekends. These events occur on a fairly regular basis (at least once a week). Because the parking would serve existing events, the trip generation associated with these events is already considered in the existing traffic counts. Implementation of the overflow parking would improve traffic operations during special events but the parking proposal should be evaluated prior to implementation to ensure safe and efficient vehicular access to and from the parking area and to evaluate pedestrian circulation to and from the overflow parking. Implementation of Mitigation Measure TRAF-2 would ensure that proposed overflow parking would not result in any significant impacts.

Mississippi Bar

Access to Mississippi Bar is provided off of Sunset Avenue east of Hazel Avenue. Existing facilities include equestrian concession, trail access, and paddling lagoons/channels.

No Project: Moderate Impact

The current General Plan proposes to add 100 picnic sites. An increase in parking is not stated, however to generate trips for the proposed picnic sites, the observed daily trip rate is applied to the 100 new picnic sites. An increase of 471 daily trips is forecast as shown in Table 10.E. No mitigation measures are required.

Preferred Alternative: Moderate Impact

Similar to the No Project Alternative, the Preferred Alternative proposes to provide a picnic area. In addition, flush toilets and drinking water would be provided at the parking area. Based on this description, an increase of up to 471 daily trips is forecast as shown in Table 10.E. The trip generating uses considered under the Preferred Alternative are the same as in the No Project. No mitigation measures are required.

Alternative 3: High Impact

Similar to the No Project, Alternative 3 proposes to provide a picnic area. In addition, Alternative 3 proposes to develop vehicle access to the facilities on Lake Natoma, along with a group campground, food concession, a paddling facility/boathouse, a visitor/nature center and approximately 250 parking spaces.

Based on the parking capacity, Alternative 3 has the potential to generate approximately 1,178 daily trips. Because Alternative 3 has the potential to generate more than 500 daily trips, traffic impacts associated with implementation of this Alternative are considered high. Implementation of Mitigation Measure TRAF-1a and TRAF-1b would mitigate the potential traffic impacts of Alternative 3 to less than significant.

Negro Bar

Negro Bar is located west of Folsom Boulevard and the American River Bridge. Access to Negro Bar is provided off of Greenback Lane, just west of Folsom Boulevard. Existing facilities include 96 day use parking spaces, picnic tables/barbeques, unguarded swim beach, 3 restrooms, boat equipment rental, 2 launch lanes, 300 launch parking spaces, 3 group campsites, and trail access.

Preferred Alternative: Moderate Impact

The Preferred Alternative proposes to convert the group camping area to a group picnic facility and develop the Negro Bar Cultural Center which may include a small amphitheater. Although the project description has not been finalized, it is estimated that implementation of the Negro Bar Cultural Center would result in approximately 50 additional visitors per day, which would generate approximately 50 vehicles trips per day (assuming a vehicle occupancy of two persons per car). No mitigation measures are required.

Folsom Powerhouse

Folsom Powerhouse is located east of Folsom Boulevard and the American River Bridge. Access to Folsom Powerhouse is provided off of Greenback Lane-Riley Street, just east of Folsom Boulevard. Existing facilities include 35 parking spaces, a museum, gift shop, restrooms and drinking water, picnic tables, trail access and a visitor center.

No Project: Moderate Impact

The current General Plan proposes to add a boat dock and 80 parking spaces. When the observed daily trip rate is applied to the 80 new parking spaces, an increase of 109 daily trips is forecast as shown in Table 10.E. No mitigation measures are required.

Preferred Alternative, Alternative 3, Alternative 4: Moderate Impact

The Preferred Alternative proposes to provide a 5,500 square foot visitor center and

expand the parking area by 30 to 50 spaces. The proposed visitor center is intended to support the existing historical landmark and would not necessarily be a trip generator by itself. However, the expanded parking area would provide additional parking capacity for visitors to the site. When the observed daily trip rate is applied to 30 new parking spaces, a moderate increase of 68 daily trips is forecast as shown in Table 10.E. No mitigation measures are required.

Natoma Shore South

Natoma Shore (South) is located west of Folsom Boulevard, just south of the Folsom Boulevard/Blue Ravine Road intersection. Access to Natoma Shore (South) is provided off of Folsom Boulevard. Existing facilities include 20 day use parking spaces, picnic tables, 1 launch lane, beach equipment rental, toilets, and trail access.

No Project Alternative: High Impact

The current General Plan proposes to add 6 picnic sites and a 60,000 square foot State Indian Museum with approximately 300 parking spaces. When the observed daily trip rate is applied to 300 new parking spaces, an increase of 723 daily trips is forecast. Because the current General Plan has the potential to generate more than 500 daily trips, traffic impacts associated with implementation of the No Project Alternative are considered high. Implementation of Mitigation Measure TRAF-1a would reduce traffic impacts to less than significant.

Preferred Alternative, Alternative 3: High Impact

Similar to the No Project alternative, the Preferred Alternative and Alternative 3 propose to add picnic sites and a 60,000 square foot State Indian Museum with approximately 300 parking spaces. When the observed daily trip rate is applied to 300 new parking spaces, an increase of 723 daily trips is forecast. Because these alternatives have the potential to generate more than 500 daily trips, traffic impacts associated with implementation of these alternatives are considered high. Implementation of Mitigation Measure TRAF-1a and TRAF-1b would reduce traffic impacts to less than significant.

Mooney Ridge

Mooney Ridge is located east of Auburn-Folsom Road and north of Beals Point. Currently, there is no vehicular access provided to Mooney Ridge. Mooney Ridge is located east of Auburn-Folsom Road and north of Beals Point. Existing facilities include trail access.

No Project: High Impact

The current General Plan proposes to add 250 parking spaces, a 200-slip marina, 2 launch lanes, snack bar/marine provisions, boating equipment rental, fuel station, excursion ferry, operations dock/office, bicycle trail, restrooms, and bike lock/hitch areas. When the observed daily trip rate is applied to the 250 new parking spaces, an increase of 603 trips is forecast as shown in Table 10.E. Because the Current General Plan has the potential to generate more than 500 daily trips, traffic impacts associated with implementation of the No Project Alternative are considered high. Implementation of Mitigation Measure TRAF-1a would ensure that traffic impacts caused by the proposal are mitigated to a less than significant level.

Granite Bay South

Granite Bay (South) is located east of the Auburn-Folsom Road/Douglas Boulevard intersection along Douglas Boulevard. Access to Granite Bay (South) is provided at the terminus of Douglas Boulevard east of Auburn-Folsom Road. Existing facilities include 42 launch lanes, 1,110 parking spaces, 5 restrooms, swim beach, food and boat rental concessions, trail access, and picnic tables.

No Project: High Impact

The current General Plan proposes to add 700 parking spaces, 300 family/group picnic sites, and a new park entrance. When the observed daily trip rate is applied to the 700 new parking spaces, an increase of 1,687 daily trips is forecast as shown in Table 10.E. Because the current General Plan has the potential to generate more than 500 daily trips, traffic impacts associated with implementation of the No Project Alternative are considered high. Implementation of Mitigation Measure TRAF-1a would ensure that traffic impacts caused by the proposal are mitigated to a less than significant level.

Granite Bay North

Granite Bay (North) is located north of Granite Bay (South). Access is provided by an internal roadway from Granite Bay (South) via Douglas Boulevard. Existing facilities include an equestrian staging area, trail access, picnic tables, and informal parking areas.

No Project: High Impact

The current General Plan proposes to add 250 parking spaces and paved roads. When the observed daily trip rate is applied to the 250 new parking spaces, an increase of 603 daily trips is forecast as shown in Table 10.E. Because the current

General Plan has the potential to generate more than 500 daily trips, traffic impacts associated with implementation of the No Project Alternative are considered high. Implementation of Mitigation Measure TRAF-1a would ensure that traffic impacts caused by the proposal are mitigated to a less than significant level.

Alternative 3: Moderate Impact

Alternative 3 proposes to provide an additional formal beach with a picnic area and parking for approximately 100 vehicles. When the observed daily trip rate is applied to the 100 new parking spaces, a moderate increase of 241 daily trips is forecast as shown in Table 10.E. No mitigation measures are required.

Rattlesnake Bar

Rattlesnake Bar is located at the northern end of Folsom Lake, south of the Rattlesnake Road/Newcastle Road intersection. Access to Rattlesnake Bar is provided off of Auburn-Folsom Road via two local roads, Rattlesnake Road and Newcastle Road, northeast of the Auburn-Folsom Road/Laird Road junction. Existing facilities include 2 launch lanes, 94 parking spaces, toilets, and trail access.

No Project: Moderate Impact

The current General Plan proposes to add 100 picnic tables, trail camp, and staff residence. When the observed daily trip rate is applied to the 100 new picnic tables, a moderate increase of 136 daily trips is forecast as shown in Table 10.E. No mitigation measures are required.

Preferred Alternative: Moderate Impact

The Preferred Alternative proposes to develop picnic facilities, including group picnic areas, with shade ramadas, vault toilets, and an interpretive/nature trail. The Preferred Alternative is similar to the No Project – Current General Plan in trip generation potential, and would generate approximately 136 daily trips. No mitigation measures are required.

Alternative 3: Moderate Impact

Alternative 3 proposes to widen and extend the boat ramp, provide 200 additional parking spaces, develop approximately 100 individual and group picnic sites with shade ramadas, and improve vehicle access. The proposal has the potential to generate a moderate increase of approximately 272 additional daily trips. No mitigation measures are required.

Peninsula

The Peninsula Campground is located along Folsom Lake at the terminus of Rattlesnake Bar Road. Existing facilities include 104 campsites, five restrooms, two launch lanes, 50 launch parking spaces, 60 day use parking spaces and trail access. The existing trip generation of this management zone, based on existing surveys, is 291 daily trips.

No Project: Moderate Impact

The current General Plan proposes to upgrade the campground area by adding showers, an RV sanitary station, sand at the swimming area, 200 picnic sites and a trail staging area for approximately 15 vehicles. In addition, the loop pedestrian and equestrian trail and trail staging area will be upgraded. When the observed daily trip rate at Peninsula is applied to the 200 new picnic sites and 15-vehicle trail staging area, a moderate increase of 292 daily trips is forecast as shown in Table 10.E. No mitigation measures are required.

Preferred Alternative: Moderate Impact

The Preferred Alternative proposes to expand the campground by 50 campsites to accommodate the capacity lost as a result of converting Beals Point to group camping sites. Based on this addition, a moderate increase of 68 daily trips is forecast as shown in Table 10.E. No mitigation measures are required.

Alternative 3: Moderate Impact

Alternative 3 proposes to expand the campground by an additional 100 to 200 sites. A marina will also be developed along with improvements to Rattlesnake Bar Road. Based on the addition of 200 new campsites, an increase of up to 272 daily trips could be generated. In addition, development of a new marina has the potential to generate a significant number of trips. Implementation of Mitigation Measure TRAF-1a and TRAF-1b will ensure that traffic impacts caused by Alternative 3 would be mitigated to a less than significant impact.

Alternative 4: Moderate Impact

Similar to the Preferred Alternative, Alternative 4 proposes to expand the campground to include an additional 50 campsites. Based on this addition, a moderate increase of 68 daily trips is forecast. No mitigation measures are required.

Skunk Hollow/Salmon Falls

Skunk Hollow is located along the South Fork of the American River. Existing facilities include 82 parking spaces, picnic tables, toilets, raft drying rails, and trail access. Access to Skunk Hollow/Salmon Falls is provided off of Salmon Falls Road. The existing trip generation of this management zone, based on existing surveys, is 386 daily trips.

No Project: Moderate Impact

The current General Plan proposes to add 60 parking spaces. When the observed daily trip rate at Skunk Hollow/Salmon Falls is applied to the 60 new parking spaces, a moderate increase of 283 daily trips is forecast as shown in Table 10.E. No mitigation measures are required.

El Dorado Shore

El Dorado Shore is located west of Salmon Falls Road, along the South Fork of the American River. Existing facilities include 15 parking spaces, equestrian staging area, toilets, and trail access.

No Project: Moderate Impact

The current General Plan proposes to add 30 parking spaces and toilets at Sweetwater Creek. In addition, 80 campsites, an RV sanitation station, boat dock, boat camping, swim beach with restrooms, and a trail staging area are proposed at New York Creek/Monte Vista. When the observed daily trip rate is applied to the 110 new parking spaces, 80 of which are provided by the campsites, a moderate increase of 150 daily trips is forecast as shown in Table 10.E. No mitigation measures are required.

Brown's Ravine

Brown's Ravine is located north of Green Valley Road, northeast of Mormon Island Cove. Existing facilities include seven launch lanes, 725 parking spaces, two restrooms, snack bar/marine provisions, fuel station, boating equipment rental, picnic tables, trail staging area and trail access. The existing trip generation of this management zone, based on existing surveys, is 1,744 daily trips.

Alternative 3: High Impact

Alternative 3 proposes to expand Brown's Ravine Marina into Mormon Island Cove (i.e., 300 boat slips and 250 parking spaces at both Brown's Ravine and Mormon Island Cove). When the observed daily trip rate is applied to the 250 new parking

spaces, an increase of 603 daily trips is forecast as shown in Table 10.E. Because this alternative has the potential to generate more than 500 daily trips, traffic impacts associated with implementation of this alternative are considered high.

Implementation of Mitigation Measure TRAF-1a and TRAF-1b would reduce traffic impacts to less than significant.

Mormon Island Cove

Mormon Island Cove is located north of Green Valley Road, east of Folsom Point and southwest of Brown's Ravine. Access to Mormon Island Cove is provided off of Green Valley Road. Existing facilities include a trailhead, trail access, and the Wetland Preserve boardwalk.

Alternative 3: High

Alternative 3 proposes to expand Brown's Ravine Marina into this zone. Roads, parking areas, and other facilities would be developed that would double the size and capacity of the existing marina, adding approximately 600 boat slips and 500 parking spaces. The expansion would occur in both Mormon Island Cove and Brown's Ravine (i.e., 300 boat slips and 250 parking spaces at each location). Based on the additional parking capacity, Alternative 3 has the potential to generate approximately 603 daily trips. Alternative 3 has the potential to generate a significant impact to Green Valley Road and other roadways in the area. Implementation of Mitigation Measure TRAF-1a and TRAF-1b would ensure that traffic impacts are reduced to a less than significant level.

Folsom Point

Folsom Point is located at the southern end of Folsom Lake, north of East Natoma Street, west of Green Valley Road, and east of the Folsom Dam. Access to Folsom Point is provided off of East Natoma Street. Existing facilities include 4 launch lanes, 130 launch parking spaces, launch area restrooms, picnic tables/barbeques, toilets, 77 day use parking spaces, and trail access.

No Project: High Impact

The current General Plan proposes to add a visitor orientation/interpretation building, restrooms, a view restaurant and approximately 50 parking spaces. The view restaurant includes a snack bar, viewing deck, and a boat dock. Based on the parking capacity, the current General Plan has the potential to generate approximately 121 daily trips. However, it is probable that more than 121 daily trips could be generated by the proposed uses, regardless of the parking capacity. For

example, the visitor orientation/interpretation building could attract visitors who are destined to other management areas, but who would first visit the orientation/interpretation building, thus generating additional vehicle trips to Folsom Point. Likewise, the proposed restaurant could attract patrons who travel there simply to dine and not to utilize the recreational facilities, thus generating vehicle trips above and beyond those generated by the recreation facility. The makeup and operation of these recreation facilities and visitor services could have the potential to generate a significant number of trips and could impact East Natoma Street and other roadways in the area. Because a defined project description has not been developed, these uses should be analyzed further once a development proposal has been finalized. Implementation of Mitigation Measure TRAF-1a would reduce the impact to less than significant.

Preferred Alternative: High Impact

The Preferred Alternative proposes to expand boat ramp lane capacity and parking and develop a multi-use facility at Folsom Point. Approximately 50-100 parking spaces would be provided. Based on the additional parking, the Preferred Alternative has the potential to generate approximately 241 daily trips. As discussed under the No Project Alternative, a multi-use facility could generate a significant number of trips, depending on the specific proposal for these facilities and the operation of the facility. Further study of a more defined project description is warranted as the project could generate a significant number of trips and could impact East Natoma Street and other roadways in the area. Implementation of Mitigation Measure TRAF-1a would reduce the impact to less than significant.

Alternative 3: High Impact

Alternative 3 proposes to expand paved parking at the boat ramp, extend and widen the boat ramp and develop a multi-use facility. In addition, a formal beach area would be developed along with 200 additional parking spaces. Based on the additional parking, the Preferred Alternative has the potential to generate approximately 482 daily trips. As discussed under the No Project Alternative, a visitor center could generate a significant number of trips, depending on the specific proposal for these facilities and the operation of the facility. Further study of a more defined project description is warranted as the project could generate a significant number of trips. Implementation of Mitigation Measure TRAF-1a and TRAF-1b would reduce the impact to less than significant.

Alternative 4: High Impact

Similar to the Preferred Alternative, Alternative 4 proposes to expand boat ramp lane capacity and parking and develop a multi-use facility. Based on the additional parking, the Preferred Alternative has the potential to generate approximately 241 daily trips. As discussed under the No Project Alternative, a multi-use facility could generate a significant number of trips, depending on the specific proposal for these facilities and the operation of the facility. Further study of a more defined project description is warranted as the project could generate a significant number of trips and could impact East Natoma Street and other roadways in the area.

Implementation of Mitigation Measure TRAF-1a would reduce the impact to less than significant.

Implementation of the above listed mitigation measures would reduce environmental impacts associated with traffic/circulation to less than significant levels. Consequently, the conditions included in the Significance Criteria (TRAFFIC-a through TRAFFIC-b) have been addressed.

4.4.11 Air Quality

This section provides a discussion of the existing air quality environment and an analysis of potential air quality impacts and mitigation measures associated with the implementation of the Plan. The Folsom Lake State Recreation Area is located within the following three counties: Sacramento, Placer and El Dorado. It is also located within two air basins: the Mountain Counties Air Basin (MCAB) (El Dorado County) and the Sacramento Valley Air Basin (SVAB) (Sacramento and Placer Counties). The El Dorado County Air Pollution Control District (EDCAPCD) administers air quality in the Mountain County Air Basin portion of El Dorado County. The Placer County Air Pollution Control District (PCAPCD) administers air quality in the Sacramento Valley Air Basin portion of Placer County. The Sacramento Metropolitan Air Quality Management District (SMAQMD) administers air quality in Sacramento County.

This analysis follows the guidelines of all three districts for a project-specific air quality analysis by examining the short-term construction and long-term operational impacts and by evaluating the effectiveness of mitigation measures incorporated as part of the Plan design.

4.4.11.1 Affected Environment

4.4.11.1.1 *Regional Air Quality*

Both the State of California and the federal government have established health-based ambient air quality standards (AAQS). As shown in Table 11.A, these pollutants include ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter with a diameter of 10 microns or less (PM₁₀), particulate matter with a diameter of 2.5 microns or less (PM_{2.5}), and lead. In addition, the State has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

Table 11.A: Ambient Air Quality Standards (AAQS)

Pollutant	Averaging Time	California Standards ¹		Federal Standards ²		
		Concentration ³	Method ⁴	Primary ^{3,5}	Secondary ^{3,6}	Method ⁷
Ozone (O ₃)	1-Hour	0.09 ppm (180 µg/m ³)	Ultraviolet Photometry	--	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	0.07 ppm (137 µg/m ³)		0.08 ppm (157 µg/m ³) ⁸		
Respirable Particulate Matter (PM ₁₀)	24-Hour	50 µg/m ³	Gravimetric or Beta Attenuation	150 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m ³		50 µg/m ³		
Fine Particulate Matter (PM _{2.5})	24-Hour	No Separate State Standard		65 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m ³	Gravimetric or Beta Attenuation	15 µg/m ³		
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m ³)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m ³)	None	Non-Dispersive Infrared Photometry (NDIR)
	1-Hour	20 ppm (23 mg/m ³)		35 ppm (40 mg/m ³)		
	8-Hour (Lake Tahoe)	6 ppm (7 mg/m ³)		--		
Nitrogen Dioxide (NO ₂)	Annual Arithmetic Mean	--	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m ³)	Same as Primary Standard	Gas Phase Chemiluminescence
	1-Hour	0.25 ppm (470 µg/m ³)		--		
Sulfur Dioxide (SO ₂)	Annual Arithmetic Mean	--	Ultraviolet Fluorescence	0.030 ppm (80 µg/m ³)	--	Spectrophotometry (Parosanine Method)
	24-Hour	0.04 ppm (105 µg/m ³)		0.14 ppm (365 µg/m ³)	--	
	3-Hour	--		--	0.5 ppm (1300 µg/m ³)	
	1-Hour	0.25 ppm (655 µg/m ³)		--	--	
Lead ⁸	30 Day Average	1.5 µg/m ³	Atomic Absorption	--	--	High-Volume Sampler and Atomic Absorption
	Calendar Quarter	--		1.5 µg/m ³	Same as Primary Standard	
Visibility- Reducing Particles	8-Hour	Extinction coefficient of 0.23 per kilometer - visibility of ten miles or more (0.07-30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		No		
Sulfates	24-Hour	25 µg/m ³	Ion Chromatography	Federal		
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m ³)	Ultraviolet Fluorescence	Standards		
Vinyl Chloride ⁹	24-Hour	0.01 ppm (26 µg/m ³)	Gas Chromatography			

Source: ARB (March 17, 2006).

Footnotes:

¹ California standards for ozone; carbon monoxide (except Lake Tahoe); sulfur dioxide (1- and 24-hour); nitrogen dioxide; suspended particulate matter - PM₁₀, PM_{2.5}, and visibility reducing particles, are values that are not to be

exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

- ² National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight-hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10} , the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above $150 \mu\text{g}/\text{m}^3$ is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the EPA for further clarification and current federal policies.
- ³ Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
- ⁴ Any equivalent procedure that can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
- ⁵ National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
- ⁶ National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
- ⁷ Reference method as described by the EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the EPA.
- ⁸ New federal eight-hour ozone and fine particulate matter standards were promulgated by the EPA on July 18, 1997. Contact the EPA for further clarification and current federal policies.
- ⁹ The ARB has identified lead and vinyl chloride as ‘toxic air contaminants’ with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

In addition to setting out primary and secondary AAQS, the State of California has established a set of episode criteria for O_3 , CO , NO_2 , SO_2 , and PM_{10} . These criteria refer to episode levels representing periods of short-term exposure to air pollutants that actually threaten public health. Health effects are progressively more severe as pollutant levels increase from Stage One to Stage Three. Table 11.B lists the primary health effects and sources of common air pollutants. Because the concentration standards were set at a level that protects public health with an adequate margin of safety (EPA), these health effects will not occur unless the standards are exceeded by a large margin or for a prolonged period of time. State AAQS are more stringent than federal AAQS. Among the pollutants, ozone (O_3) and particulate matter ($PM_{2.5}$ and PM_{10}) are considered regional pollutants, while the others have more localized effects.

Table 11.B: Health Effects Summary of Some of the Common Pollutants Found in Air

<i>Pollutant</i>	<i>Health Effects</i>	<i>Examples of Sources</i>
Particulate Matter (PM ₁₀ : less than or equal to 10 microns)	<ul style="list-style-type: none"> • Increased respiratory disease • Lung damage • Premature death 	<ul style="list-style-type: none"> • Cars and trucks, especially diesels • Fireplaces, wood stoves • Windblown dust from roadways, agriculture, and construction
Ozone (O ₃)	<ul style="list-style-type: none"> • Breathing difficulties • Lung damage 	<ul style="list-style-type: none"> • Formed by chemical reactions of air pollutants in the presence of sunlight; common sources are motor vehicles, industries, and consumer products
Carbon Monoxide (CO)	<ul style="list-style-type: none"> • Chest pain in heart patients • Headaches, nausea • Reduced mental alertness • Death at very high levels 	<ul style="list-style-type: none"> • Any source that burns fuel such as cars, trucks, construction and farming equipment, and residential heaters and stoves
Nitrogen Dioxide (NO ₂)	<ul style="list-style-type: none"> • Lung damage 	<ul style="list-style-type: none"> • See carbon monoxide sources
Toxic Air Contaminants	<ul style="list-style-type: none"> • Cancer • Chronic eye, lung, or skin irritation • Neurological and reproductive disorders 	<ul style="list-style-type: none"> • Cars and trucks, especially diesels • Industrial sources such as chrome platers • Neighborhood businesses such as dry cleaners and service stations • Building materials and products

Source: ARB December 27, 2005.

The California Clean Air Act (CCAA) provides the air districts with the authority to manage transportation activities at indirect sources. Indirect sources of pollution are generated when minor sources collectively emit a substantial amount of pollution. Examples of this are the motor vehicles at an intersection, a mall, and on highways. These air districts also regulate stationary sources of pollution throughout their jurisdictional area. Direct emissions from motor vehicles are regulated by the California Air Resources Board (ARB).

State and federal health officials consider all types of asbestos to be hazardous. Concerns were raised in 1998 about the possible health hazards resulting from construction activities that disturb rock and soils containing asbestos, causing the fibers to become airborne. As a result, the United States Environmental Protection Agency (EPA), ARB, and the California Department of Conservation (DOC) have all produced numerous studies concerning Naturally Occurring Asbestos (NOA). NOA may be found in at least 44 of California's 58 counties, including Sacramento, Placer, and El Dorado. To address some of the health concerns associated with exposure to NOA from earth moving activities, ARB has adopted

two Airborne Toxic Control Measures (ATCMs). The three air districts – EDCAPCD, PCAPCD, SMAQMD – have also adopted measures to address NOA.

4.4.11.1.2 Regional Climate/Meteorology

Air quality in the Plan Area is not only affected by various emissions sources (mobile, industry, etc.) but is also affected by atmospheric conditions such as wind speed, wind direction, temperature, and rainfall.

SACRAMENTO VALLEY AIR BASIN

The SVAB occupies approximately 15,040 square miles and encompasses the boundaries of the following counties: Butte, Colusa, Glenn, Sacramento, Shasta, Sutter, Tehama, Yolo, and Yuba Counties, including the eastern portion of Solano County and the western, urbanized portion of Placer County.

Air quality in the SVAB is heavily influenced by weather conditions. Winters in the SVAB are generally wet and cool; summers are hot and dry. The SVAB is bounded to the north by the Cascade mountain range, to the east by the Sierra Nevada mountain range, and to the west by the Coastal Range. Wind from the coastal area is channeled along these ranges and in the process transports pollutants from one air basin to another. The coastal wind flows northward from south of Sacramento County transporting pollutants from the Sacramento metropolitan area into Placer County and other northern counties. The primary source of emissions in the Sacramento metropolitan area is on-road vehicles.

The vertical dispersion of air pollutants in the SVAB is limited by the presence of persistent temperature inversions. Typically, expansional cooling of the atmosphere causes air temperature to decrease with altitude. An inversion is a reversal of this atmospheric state. In an inversion, the air temperature increases with height. Inversions can exist at the surface or at any height above the ground. Warm air above the inversion base is less dense than cooler air below the inversion base, therefore, the inversion base represents an abrupt density change. This difference in air density prevents air above and below the inversion base from mixing. The elevation at which the base of the inversion occurs is known as the “mixing height.” This is the level up to which pollutants can mix vertically.

Inversion layers are significant in determining ozone formation because they limit the amount of mixing space available for air particles. Under an inversion, O₃ and its precursors will mix and react with greater frequency, producing higher concentrations of pollutants in the air. The inversion will also simultaneously trap and hold directly emitted pollutants such

as CO. PM_{10} is both directly emitted and indirectly created in the atmosphere as a result of chemical reactions, as such, its levels are increased under an inversion.

During the night, surface or radiation inversions are formed when the ground surface becomes cooler than the air above it. On clear nights, the Earth's surface goes through a radiative process in which heat energy is transferred from the ground to a cooler night sky. As the Earth's surface cools during the evening hours, the air directly above it also cools, while air higher up remains relatively warm. The inversion is destroyed when heat from the sun warms the ground, which in turn heats the lower layers of air; this heating stimulates the ground level air to float up through the inversion layer.

The combination of stagnant wind conditions and low-level inversions produces the greatest pollutant concentrations. On days with high wind and/or no inversions, ambient air pollutant concentrations are lowest. Periods of low-level inversions and reduced wind speeds give rise to high concentrations of CO and PM_{10} . In the winter, extremely low-level inversions and air stagnation during the night and early morning hours produce the greatest pollution problems related to CO (and can lead to CO "hotspots" along heavily traveled roads and at busy intersections) and oxides of nitrogen⁴ (NO_x). In the summer, the longer daylight hours and the brighter sunshine combine to cause a reaction between hydrocarbons and NO_x to form O_3 . Because of its long formation time, O_3 is a regional pollutant rather than a local hotspot problem.

Sacramento County. Part of the Unit area is located within Sacramento County. Sacramento County is located at the southern end of the Sacramento Valley, which, as stated earlier, is bounded by the Coast and Diablo Ranges on the west and the Sierra Nevada Range on the east. The County is 55 miles northeast of the Carquinez Strait, a sea-level gap between the Coast Range and the Diablo Range; the intervening terrain is flat.

The prevailing wind in Sacramento County is from the south due to marine breezes through the Carquinez Strait. During winter, however, sea breezes diminish and winds from the north occur more frequently.

⁴ NO_x is used to mean the total concentration of NO plus NO_2 . During daylight NO and NO_2 are in equilibrium with the ratio NO/NO_2 determined by the intensity of sunshine (which converts NO_2 to NO) and ozone (which reacts with NO to give back NO_2). NO and NO_2 are also central to the formation of tropospheric ozone. This definition excludes other oxides of nitrogen such as Nitrous Oxide.

Between late spring and early fall, a layer of warm air often covers a layer of cool air from the Delta and San Francisco Bay, resulting in an inversion. Typical winter inversions are formed when the sun heats the upper layers of air, trapping cooler air that has been in contact with the colder surface of the Earth throughout the night. Although different inversion types predominate at certain times of the year, both types can occur at any time. Local topography gives rise to many variations that can affect the inversion base and thus influence local air quality.

Placer County. The Unit area is partially located in the SVAB portion of Placer County. Moderate dry days and cool nights characterize the summer months in Placer County. During the summer, the temperature varies between the low-lying valley and high country areas. Typically, valley temperatures are higher than mountain temperatures. The rainy season in Placer County occurs between November and April, but excessive rainfall and damaging windstorms are rare.

MOUNTAIN COUNTIES AIR BASIN

The MCAB is comprised of Plumas, Sierra, Nevada, Placer (middle portion), El Dorado (western portion), Amador, Calaveras, Tuolumne, and Mariposa Counties. The MCAB lies along the northern Sierra Nevada mountain range, close to or contiguous with the Nevada border, and covers an area of roughly 11,000 square miles.

The climate of the MCAB is influenced by the foothill and mountainous terrain unique to the counties included in the MCAB. The general climate of the MCAB varies considerably with elevation and proximity to the Sierra ridge. The terrain features of the MCAB make it possible for various climates to exist in relatively close proximity. The pattern of mountains and hills causes a wide variation in rainfall, temperature, and localized winds throughout the MCAB. Temperature variations have an important influence on basin wind flow, dispersion along mountain ridges, vertical mixing, and photochemistry. In the winter, the Sierra Nevada Range receives large amounts of precipitation from storms moving in from the Pacific. In the summer, it receives lighter amounts of precipitation from intermittent “monsoonal” moisture flows from the south and cumulus buildup. Precipitation levels are high in the highest mountain elevations but decline rapidly toward the western portion of the MCAB. Winter temperatures in the mountains can be below freezing for weeks at a time and substantial depths of snow can accumulate, but in the western foothills, winter temperatures rarely dip below freezing and precipitation is mixed as rain or light snow. In the summer, temperatures in the mountains are mild, with daytime peaks in the 70s to low 80sF, while temperatures in the western end of El Dorado County can routinely exceed 100 F.

Due to the combination of topography and meteorology of the MCAB, local conditions predominate in determining the effect of emissions in the MCAB. Regional air flows are affected by the mountains and hills, which direct surface air flows, cause shallow vertical mixing and hinder dispersion, creating areas of high pollutant concentrations.

In the summer, the strong upwind valley air flowing into the MCAB from the Central Valley to the west is an effective transport medium for ozone precursors and for ozone generated in the Bay Area and the Sacramento and San Joaquin Valleys. These transported pollutants are the predominant cause of ozone in the MCAB and are largely responsible for the exceedances of the State and federal ozone Ambient Air Quality Standards (AAQS) in the MCAB. The ARB has officially designated the MCAB as “ozone impacted” due to transport from those areas.

El Dorado County. Part of the Unit area lies within the MCAB portion of El Dorado County. El Dorado County has two distinct air quality settings, which have been recognized formally by division of El Dorado County into two separate air basins: the Mountain Counties Air Basin and the Lake Tahoe Air Basin. El Dorado County is bordered by Sacramento Valley to the west and the State of Nevada to the east. The western area of El Dorado County consists of rolling foothills and the central and eastern areas of El Dorado County contain the Sierra Nevada mountain range.

The western slope of El Dorado County, from Lake Tahoe on the east to the Sacramento County boundary on the west, lies within the MCAB. Elevations range from over 10,000 feet at the Sierra crest down to several hundred feet above sea level at the Sacramento County boundary. Extreme slopes and differences in altitude characterize the rugged mountain peaks and valleys of the Sierra Nevada Range; rolling foothills characterize the land in the west.

The climate of El Dorado County is marked by hot, dry summers and cool, moist winters. The western portion of El Dorado County has higher temperatures and lower annual rainfall than the central and eastern portions, which are characterized by low temperatures and high annual rainfall.

Although movement of air is generally considered an effective means of diluting air pollution and subsequently attenuating the pollutant’s unhealthy effects, predominant westerly winds during the summer transport urban air pollution from the west and southwest to the MCAB. This effect can contribute significantly to the region’s inability to attain mandated air quality standards. The movement of urban pollution from the San Francisco Bay area to the

foothills of the Sierra Nevada by means of the Carquinez Strait has been documented and may account for a sizable portion of regional foothill ozone levels.

The Western Regional Climate Center (WRCC) collects and keeps climatological data at various stations throughout Northern California and the western United States. Table 11.C summarizes the climatic data in the Plan area.

Table 11.C: Area Climate Data

Station Name	Average Maximum Temp (°F)			Average Minimum Temp (°F)			Average Total Precipitation (in.)		
	Highest Monthly Average	Lowest Monthly Average	Ann Avg	Highest Monthly Average	Lowest Monthly Average	Ann Avg	Highest Monthly Average	Lowest Monthly Average	Ann Avg
Folsom Dam	94.5 in July	53.7 in Jan.	74.1	60.3 in July	37.9 in Jan.	49.4	4.43 in Jan.	0.09 in July	23.92
Rocklin	97.2 in July	52.9 in Jan.	74.6	57.6 in July	33.3 in Jan.	44.8	4.74 in Jan.	0.06 in Aug	22.27
Placerville	92.4 in July	53.2 in Jan.	71.2	56.8 in July	32.3 in Jan.	43.4	6.98 in Jan.	0.08 in July	38.44
Placerville IFG	90.8 in July	53.1 in Jan.	69.8	64.4 in July	37.8 in Jan.	49.0	7.42 in Jan.	0.18 in July	38.88
Auburn	92.5 in July	53.9 in Jan.	72.3	61.9 in July	36.3 in Jan.	48.2	6.40 in Jan.	0.05 in July	34.45
Colfax	91.3 in July	54.2 in Jan.	71.1	61.9 in July	34.6 in Jan.	46.4	8.66 in Jan.	0.11 in July	47.74

Source: WRCC web site: <http://www.wrcc.dri.edu/climsum.html>

4.4.11.1.3 Air Pollution Constituents and Attainment Status

The ARB coordinates and oversees both State and federal air pollution control programs in California. The ARB oversees activities of local air quality management agencies and maintains air quality monitoring stations throughout the State in conjunction with the EPA and local air districts. The ARB has divided the State into 15 air basins based on meteorological and topographical factors of air pollution. Data collected at these stations are used by the ARB and EPA to classify air basins as attainment, nonattainment, nonattainment-transitional, or unclassified, based on air quality data for the most recent three calendar years compared with the AAQS. Nonattainment areas are imposed with additional restrictions, as required by the EPA. The air quality data are also used to monitor progress in attaining air quality standards.

The ARB provided the EPA with the State's recommendations for eight-hour ozone area designations on July 15, 2003. The recommendations and supporting data were an update to a report submitted to the EPA in July 2000. On December 3, 2003, the EPA published its proposed designations. The EPA's proposal differs from the State's recommendations

primarily on the appropriate boundaries for several nonattainment areas. The ARB responded to the EPA's proposal on February 4, 2004. The EPA issued final designations on April 15, 2004. Table 11.D lists the attainment status for the criteria pollutants in the two Basins in which the park is located.

Table 11.D: Attainment Status for the two Air Basins in the Plan area

Criteria Pollutant	Federal Designation	State Designation
<i>Mountain Counties Air Basin</i>		
One-hour ozone (O ₃)	Revoked June 2005	Nonattainment
Eight-hour ozone (O ₃)	Nonattainment	Not Established
Carbon monoxide (CO)	Attainment	Attainment/unclassified
PM ₁₀	Attainment/unclassified	Nonattainment
PM _{2.5}	Attainment/unclassified	Attainment/unclassified
Nitrogen dioxide (NO ₂)	Attainment/unclassified	Attainment
<i>Sacramento Valley Air Basin</i>		
One-hour ozone (O ₃)	Revoked June 2005	Nonattainment: Serious
Eight-hour ozone (O ₃)	Nonattainment	Not Established
Carbon monoxide (CO)	Attainment	Attainment
PM ₁₀	Nonattainment: Moderate	Nonattainment
PM _{2.5}	Attainment/unclassified	Nonattainment
Nitrogen dioxide (NO ₂)	Attainment/unclassified	Attainment

Source: ARB, May 2006.

Ozone. O₃ (smog) is formed by photochemical reactions between NO_x and reactive organic gases (ROG) rather than being directly emitted. O₃ is a pungent colorless gas typical of Southern California smog. Elevated O₃ concentrations result in reduced lung function, particularly during vigorous physical activity. This health problem is particularly acute in sensitive receptors such as the sick, the elderly, and young children. O₃ levels peak during summer and early fall. The Plan area of both Basins are designated as a nonattainment area for the State one-hour O₃ standards. The EPA has classified the Plan area of both Basins as nonattainment for the eight-hour O₃ standard.

Carbon Monoxide. CO is formed by the incomplete combustion of fossil fuels, almost entirely from automobiles. It is a colorless, odorless gas that can cause dizziness, fatigue, and impairment to central nervous system functions. The Plan area of both Basins is designated as in attainment for federal and State CO standards.

Nitrogen Oxides. NO₂, a reddish brown gas, and nitric oxide (NO), a colorless, odorless gas, are formed from fuel combustion under high temperature or pressure. These compounds are referred to as nitrogen oxides, or NO_x. NO_x is a primary component of the photochemical smog reaction. It also contributes to other pollution problems, including a high

concentration of fine particulate matter, poor visibility, and acid deposition (i.e., acid rain). NO₂ decreases lung function and may reduce resistance to infection. The Plan area of both Basins is designated as in attainment or unclassified area for federal and State NO₂ standards.

Sulfur Dioxide. SO₂ is a colorless, irritating gas formed primarily from incomplete combustion of fuels containing sulfur. Industrial facilities also contribute to gaseous SO₂ levels. SO₂ irritates the respiratory tract, can injure lung tissue when combined with fine particulate matter, and reduces visibility and the level of sunlight. The Plan area of both Basins is in attainment or unclassified with both federal and State SO₂ standards.

Lead. Lead is found in old paints and coatings, plumbing, and a variety of other materials. Once in the blood stream, lead can cause damage to the brain, nervous system, and other body systems. Children are highly susceptible to the effects of lead. The Plan area of both Basins is in attainment for the federal and State standards for lead.

Particulate Matter. Particulate matter is the term used for a mixture of solid particles and liquid droplets found in the air. Coarse particles, PM₁₀, derive from a variety of sources, including windblown dust and grinding operations. Fuel combustion and resultant exhaust from power plants and diesel buses and trucks are primarily responsible for fine particle, PM_{2.5}, levels. Fine particles can also be formed in the atmosphere through chemical reactions. PM₁₀ can accumulate in the respiratory system and aggravate health problems such as asthma. The EPA's scientific review concluded that PM_{2.5}, which penetrates deeply into the lungs, is more likely than PM₁₀ to contribute to the health effects listed in a number of recently published community epidemiological studies at concentrations that extend well below those allowed by the current PM₁₀ standards. These health effects include premature death and increased hospital admissions and emergency room visits (primarily the elderly and individuals with cardiopulmonary disease); increased respiratory symptoms and disease (children and individuals with cardiopulmonary disease such as asthma); decreased lung functions (particularly in children and individuals with asthma); and alterations in lung tissue and structure and in respiratory tract defense mechanisms. The Plan area of both Basins is a nonattainment area for the State PM₁₀ standard, and only the SVAB portion of the Plan area is a nonattainment area for the federal PM₁₀ standard. The Plan area of both Basins is an attainment/unclassified area for the federal PM_{2.5} standard, and only the SVAB portion of the Plan area is a nonattainment area for the State PM_{2.5} standard.

Naturally Occurring Asbestos. Asbestos is the name for a group of naturally occurring silicate minerals that may be found in serpentine rock and both mafic and ultramafic volcanic rock (materials that contain magnesium and iron and a very small amount of silica).

NOA deposits are not limited to these formations as deposits have been found in rock other than serpentine and ultramafic rock. The two varieties of asbestos include serpentine asbestos and amphibole asbestos. Both types of asbestos are hazardous as they may cause lung disease and are classified as a known human carcinogen by state, federal, and international agencies. When rock containing NOA is broken or crushed, asbestos fibers may be released from the rock and may become airborne, causing a health hazard.

The California Geological Survey (CGS) and Department of Conservation (DOC) have produced maps that indicate the known and likely locations of NOA and associated geological formations. NOA deposits and NOA bearing materials are abundant in the Sierra Nevada foothills and are known to be present in El Dorado County, Sacramento County and Placer County. Occurrences of amphibole asbestos and metamorphosed mafic volcanic rocks have been mapped in several locations in eastern Sacramento County, including the City of Folsom. A site-specific geologic investigation is required to verify the presence and concentration of NOA. As NOA occurrences are particularly frequent in this region, several studies have been conducted in effort to determine the extent in the air and soil. Refer to Section 4.4.7, Geology and Soils, for additional background information on NOA.

4.4.11.1.4 Local Air Quality

The Air Districts maintain ambient air quality monitoring stations throughout the Plan area. The air quality monitoring stations closest to the site are the Folsom-Natoma Street, Roseville-N. Sunrise Blvd. and the North Highlands Station (the latter two are just west of Folsom, north of Sacramento). The Folsom-Natoma Street Monitoring Station monitors ozone and NO₂; the Roseville-N. Sunrise Blvd. Air Monitoring Station monitors CO, PM₁₀, and PM_{2.5}; and the North Highlands Air Monitoring Station monitors SO₂. These air quality trends are representative of the ambient air quality in the project area. The criteria pollutants monitored at these stations (California Air Resources Board 2006) are illustrated in Table 11.E.

Table 11.E: Ambient Air Quality in the Plan Area

Pollutant	Standard	2003	2004	2005
<i>Carbon Monoxide (CO)</i> ¹				
Maximum 1-hr concentration (ppm)		2.4	2.6	2.0
Number of days exceeded:	State: > 20 ppm	0	0	0
	Federal: > 35 ppm	0	0	0
Maximum 8-hr concentration (ppm)		1.59	1.93	1.27
Number of days exceeded:	State: • 9.0 ppm	0	0	0
	Federal: • 9 ppm	0	0	0
<i>Ozone (O₃)</i> ²				
Maximum 1-hr concentration (ppm)		0.140	0.111	0.120
Number of days exceeded:	State: > 0.09 ppm	30	14	23
	Federal: > 0.12 ppm	3	0	0
Maximum 8-hr concentration (ppm)		0.118	0.094	0.108
	Federal: > 0.08 ppm	26	7	19
<i>Coarse Particulates (PM₁₀)</i> ¹				
Maximum 24-hr concentration (•g/m ³)		58.0	43.0	40.0
Number of days exceeded:	State: > 50 •g/m ³	1	0	0
	Federal: > 150 •g/m ³	0	0	0
Annual arithmetic average concentration (•g/m ³)		21.0	21.6	22.0
Exceeded for the year:	State: > 20 •g/m ³	Y	Y	Y
	Federal: > 50 •g/m ³	N	N	N
<i>Fine Particulates (PM_{2.5})</i> ¹				
Maximum 24-hr concentration (•g/m ³)		30.0	32.0	47.1
	Federal: > 65 •g/m ³	0	0	0
Annual arithmetic average concentration (•g/m ³)		9.9	9.4	10
Exceeded for the year:	State: > 12 •g/m ³	N	N	N
	Federal: > 15 •g/m ³	N	N	N
<i>Nitrogen Dioxide (NO₂)</i> ²				
Maximum 1-hr concentration (ppm)		0.044	0.052	0.042
Number of days exceeded:	State: > 0.25 ppm	0	0	0
Annual arithmetic average concentration (ppm)		0.009	0.008	0.008
	Federal: > 0.053 ppm	N	N	N
<i>Sulfur Dioxide (SO₂)</i> ³				
Maximum 1-hr concentration (ppm)		0.012	0.008	0.010
	State: > 0.25 ppm	0	0	0
Maximum 3-hr concentration (ppm)		0.008	0.006	0.007
	Federal: > 0.5 ppm	0	0	0
Maximum 24-hr concentration (ppm)		0.004	0.002	0.002
Number of days exceeded:	State: > 0.04 ppm	0	0	0
	Federal: > 0.14 ppm	0	0	0
Annual arithmetic average concentration (ppm)		0.001	0.001	0.001
Exceeded for the year:	Federal: > 0.030 ppm	N	N	N

Sources: EPA and ARB, 2006.

¹ Data taken from Roseville-N. Sunrise Blvd. Air Monitoring Station² Data taken from Folsom-Natoma Street Air Monitoring Station³ Data taken from North Highlands Air Monitoring Station

ppm = parts per million

•g/m³ = microgram of pollutant per cubic meter of air

ID = insufficient data

Y = Yes

N = No

Air quality in the Unit is characterized as good. CO, PM_{2.5}, NO₂, and SO₂ levels monitored in the Plan area have not exceeded State and federal standards in the past three years. PM₁₀ levels have exceeded the State standard one day in the last three years and never exceeded the federal standard. Ozone exceeded the State standard a total of 67 days in the past three years, however only exceeded the federal standard on three days. Exceedances of air quality standards occur primarily during meteorological conditions conducive to high pollutant levels, such as cold, windless winter nights, and hot, sunny, summer afternoons.

Based on the monitored PM₁₀ and PM_{2.5} data in the Unit vicinity, suspended particulate would not cause significant health impacts to Unit visitors. In the foreseeable future, ozone levels in the Unit vicinity are expected to continue to exceed both State and federal standards, therefore, Unit visitors will continue to be exposed to the potentially harmful effects of this criteria pollutant.

4.4.11.1.5 Regulatory Framework

The three air districts – EDCAPCD, PCAPCD, SMAQMD – are primarily responsible for regulating air pollution emissions from stationary sources (e.g., factories) and from indirect sources (e.g., traffic associated with new development) and for monitoring ambient pollutant concentrations. Indirect sources are facilities that do not have equipment that directly emits substantial amounts of pollution, but that attract large numbers of mobile sources of pollution. Direct emissions from motor vehicles are regulated by the ARB and the EPA.

FEDERAL CLEAN AIR ACT OF 1970 (CAA)

The CAA authorized the establishment of national health-based air quality standards and also set deadlines for their attainment. The Federal Clean Air Act Amendments of 1990 (1990 CAAA) made major changes in deadlines for attaining NAAQS and in the actions required for areas that exceeded these standards. Under the CAA, State and local agencies in areas that exceed the NAAQS are required to develop State implementation plans (SIPs) to show how they will achieve the NAAQS by specific dates.

CALIFORNIA CLEAN AIR ACT (CCAA)

The CCAA, 1988, requires that all air districts in the State endeavor to achieve and maintain CAAQS for O₃, CO, SO₂, and NO₂ by the earliest practical date. Plans for attaining CAAQS were submitted to the ARB by regional air districts on a staggered time schedule in 1991, 1994, 1997, 2000 and 2003.

The CCAA mandates that districts focus particular attention on reducing emissions from transportation and areawide emission sources and provides districts with new authority to regulate indirect sources. Each district plans to achieve a five percent annual reduction, averaged over consecutive three year periods, in districtwide emissions of each nonattainment pollutant or its precursors. Substantial new growth within the region tends to impede the achievement of air emission reduction goals to the extent that additional vehicle miles are logged on the region's highways.

A strict interpretation of the reduction goals suggests that any general development that increases traffic within the region, no matter how large or small, would have a significant, Unit specific air quality impact unless the development related emissions are offset by concurrent emission reductions elsewhere within the airshed. For this reason, future planning at the Unit should consider both State and federal air quality plans and standards. This interpretation is not universal among jurisdictions because each air district has different rules based on its attainment status.

The EPA has designated the Sacramento Area Council of Governments (SACOG) as the Metropolitan Planning Organization (MPO) responsible for ensuring compliance with the requirements of the CAA for the Plan area.

CALIFORNIA AIR AND RESOURCES BOARD (ARB)

The ARB passed two asbestos air toxic control measures that primarily address classification of asbestos areas and development of dust suppression to minimize exposure for residents and workers.

The first of these regulations is Section 93105 (Title 17): Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying and Surface Mining Operations. This State Regulatory Standard requires the use of dust control measures during construction, grading, and other covered activities in areas of naturally occurring asbestos, and the use of materials containing less than 0.25 percent asbestos. The second of these regulations, Title 17 - Section 93106, is an Asbestos Airborne Toxic Control Measure that pertains to materials used for surfacing applications.

REGIONAL AIR QUALITY PLANNING FRAMEWORK

The 1976 Lewis Air Quality Management Act established air districts throughout the State. The federal CAA Amendments of 1977 required that each state adopt an implementation plan outlining pollution control measures to attain the federal standards in nonattainment areas of the State.

The ARB is responsible for incorporating air quality management plans for local air basins into a State Implementation Plan (SIP) for EPA approval. Significant authority for air quality control within them has been given to local air districts that regulate stationary source emissions and develop local nonattainment plans.

Air quality within the Unit is administered by three air quality control districts: the El Dorado County Air Pollution Control District, the Placer County Air Pollution Control District, and the Sacramento Metropolitan Air Quality Management District. These three districts are primarily responsible for regulating air pollution emissions from stationary and indirect sources and for monitoring ambient air pollutant emissions. Each district plans to achieve a five percent annual reduction, averaged over consecutive three year periods, in district-wide emissions of each non-attainment pollutant or its precursors.

4.4.11.2 Significance Criteria and Evaluation Methodology

A project would normally be considered to have a significant effect on air quality if the project would violate any AAQS, contribute substantially to an existing air quality violation, expose sensitive receptors to substantial pollutants concentrations, or conflict with the adopted environmental plans and goals of the community in which it is located. Potential significant impacts associated with air quality have been evaluated using the following criteria (CEQA Guidelines Sections 15000-15387). The project would have a significant effect on air quality if it would:

- AIRQ-a** Conflict with or obstruct implementation of the applicable air quality plan;
- AIRQ-b** Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- AIRQ-c** Result in cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or State ambient air quality standard;
- AIRQ-d** Expose sensitive receptors to substantial pollutant concentrations;
- AIRQ-e** Create objectionable odors affecting a substantial number of people.

4.4.11.2.1 *Thresholds of Significance*

PLACER COUNTY AIR POLLUTION CONTROL DISTRICT

The PCAPCD has not established any emissions threshold for construction activities associated with a proposed project. Implementation of standard conditions and feasible measures to minimize emissions during construction of the project is considered to have reduced the construction air quality impact to a less than significant level.

Project operation emissions refer to the pollutants generated by the stationary/area (direct) sources and mobile (indirect) sources. Stationary sources include electricity and natural gas consumption; mobile sources are the motor vehicle trips associated with the project. These sources would contribute to the deterioration of air quality and potentially delay the region from complying with the Clean Air Act. Hence, thresholds for pollutants are created to determine the significance of a project's impact on air quality. The thresholds of significance from operation are as follows:

Emissions Thresholds for Pollutants with Regional Effects. The following are emissions thresholds for project operations.

- 82 pounds per day of ROG
- 82 pounds per day of NO_x
- 82 pounds per day of PM₁₀
- 550 pounds per day of CO

Projects in the region with operation related emissions that exceed any of the above emission thresholds are considered significant by the PCAPCD.

Standards for Localized CO Impacts. The following are the standards for CO concentrations.

- California State one hour CO standard of 20.0 ppm
- California State eight hour CO standard of 9.0 ppm

The significance of localized project impacts depends on whether ambient CO levels in the vicinity of the project are above or below State and federal CO standards. If ambient levels are below the standards, a project is considered to have significant impacts if project emissions result in an exceedance of one or more of these standards.

If ambient CO levels already exceed the standards, a project is considered to have significant impacts if it contributes to measurable increases in the one hour or eight hour CO levels. The PCAPCD has not established any “measurable” threshold for CO concentration.

Asbestos Guidelines. The State empowers the PCAPCD to meet the requirements of Section 93105-Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying and Surface Mining Operations.

The PCAPCD believes in a proactive program that minimizes and controls soil disturbance is the best and most effective approach to limiting the release of fine particulate matter and asbestos fibers into the air. The PCAPCD addresses NOA via Rule 228, Fugitive Dust, and closely follows the work conducted by the EPA so that necessary changes in ordinance are made to address any new concerns.

EL DORADO COUNTY AIR POLLUTION CONTROL DISTRICT

The EDCAPCD has established emissions thresholds for construction activities associated with a proposed project similar to emissions associated with project operations.

Project operation emissions refer to the pollutants generated by the stationary/area (direct) sources and mobile (indirect) sources. Stationary sources include electricity and natural gas consumption; mobile sources are the motor vehicle trips associated with the project. These sources would contribute to the deterioration of air quality and potentially delay the region from complying with the Clean Air Act. Hence, thresholds for pollutants are created to determine the significance of a project’s impact on air quality. The thresholds of significance from operation are as follows:

Emissions Thresholds for Ozone Precursors. The following are emissions thresholds for ozone precursors pollutants.

- 82 pounds per day of ROG
- 82 pounds per day of NO₂

Projects in the region with operation related emissions that exceed any of the above emission thresholds are considered significant by the EDCAPCD.

Emissions Thresholds for Other Criteria Pollutants. For the other criteria pollutants, including CO, PM₁₀, SO₂, NO₂, sulfates, lead, and H₂S, a project is considered to have a

significant impact on air quality if it will cause or contribute significantly to a violation of the applicable national or State ambient air quality standards. For example, the project would have a significant impact if it will result in the exceedance of the following standards:

- California State one hour CO standard of 20.0 ppm
- California State eight hour CO standard of 9.0 ppm

Significance Criteria for Visibility. A project in the MCAB portion of El Dorado County will be considered to have a significant impact on visibility if it will cause or contribute significantly to a violation of the State visibility standard, which is ten miles (when relative humidity is less than 70 percent).

Significance Criteria for Determining Cumulative Impacts. A proposed project is considered cumulatively significant if one or more of the following conditions is met:

- The project requires a change in the existing land use designation (i.e., General Plan amendment, rezone), and projected emissions (ROG, NO_x, CO, or PM₁₀) are greater than the emissions anticipated for the site if developed under the existing land use designation;
- The project would individually exceed any significance criteria in the EDCAPCD guidelines;
- For impacts that are determined to be significant under the EDCAPCD guidelines, the Lead Agency for the project does not require the project to implement the emission reduction measures contained in and/or derived from the Air Quality Attainment Plan (AQAP); or
- The project is located in a jurisdiction that does not implement the emission reduction measures contained in and/or derived from the AQAP.

Asbestos Guidelines. The State empowers the EDCAQMD to meet the requirements of Section 93105-Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying and Surface Mining Operations.

Since 1982, the EDCAQMD has authorized Rule 223 Fugitive Dust-General Requirements which includes 223-2 Fugitive Dust-Construction Activities and 223-2 Fugitive Dust-Asbestos Hazard Mitigation. In June 2003, the Naturally Occurring Asbestos and Dust Protection Ordinance (Chapter 8.44 of El Dorado County Ordinance) came into effect.

This ordinance includes 8.44.030-General requirements for Grading, Excavation and Construction Activities and General procedures for Abatement and Penalties.

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

The SMAQMD has established emissions thresholds for construction activities associated with a proposed project similar to emissions associated with project operations. The thresholds of significance from construction and operation are as follows:

Emissions Thresholds for Criteria Pollutants with Regional Effects. The following are emissions thresholds for ozone precursors pollutants.

- 85 pounds per day of ROG
- 85 pounds per day of NO_x
- 275 pounds per day of PM₁₀

Projects in the region with operation related emissions that exceed any of the above emission thresholds are considered significant by the SMAQMD.

Standards for Carbon Monoxide Concentrations. A project is considered to have a significant impact on air quality if it will cause or contribute significantly to a violation of the CO national or State ambient air quality standards:

- California State one hour CO standard of 20.0 ppm
- California State eight hour CO standard of 9.0 ppm

Asbestos Guidelines. The State empowers the SMAQMD to meet the requirements of Section 93105-Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying and Surface Mining Operations. The State Air Resources Board endorses the SMAQMD proactive program that minimizes and controls soil disturbance as the best and most effective approach to limiting the release of fine particulate matter and asbestos fibers into the air.

The SMAQMD Air Pollution Control Officer (APCO) has determined that properties located entirely or partially within the “Moderately Likely to Contain NOA” zone⁵ are

⁵ As per the map provided by the California Geologic Survey as part of their Special Report 192: Relative Likelihood for the Presence of Naturally Occurring Asbestos in Eastern Sacramento County, California (July 2006).

asbestos areas and property owners must either (1) comply with all dust control requirements of the California Regulatory Section 93105 Airborne Toxics Control Measure (ATCM) when disturbing soil, or (2) have a registered geologist conduct a geologic evaluation demonstrating that the property does not contain asbestos at concentrations greater than 0.25%. Violations of air quality regulations are subject to criminal or civil penalties under California Health and Safety Code sections 42400 and 42402.5.

4.4.11.3 Environmental Evaluation and Mitigation Measures

The environmental consequences associated with implementing the project alternatives (Preferred Alternative, Alternative 3, and Alternative 4) and the No Project Alternative are summarized for Air Quality in Table 11.F. For all alternatives, resource categories and management zones that have an evaluation of “High” effect or “Moderate” effect are more fully described below to present the level of effect. Where necessary, mitigation measures are present to reduce potential impacts.

4.4.11.3.1 *Impacts*

Impact AIRQ-1: Implementation of the Plan would not conflict with or obstruct implementation of the applicable air quality plan. (Significance Criteria AIRQ-a).

A consistency determination plays an essential role in local agency project review by linking local planning and unique individual projects to the air quality plans. It fulfills the CEQA goal of fully informing local agency decision-makers of the environmental costs of the project under consideration at a stage early enough to ensure that air quality concerns are addressed. Only new or amended General Plan elements, Specific Plans, and significantly unique projects need to undergo a consistency review due to the air quality plan strategy being based on projections from local General Plans.

Table 11.F: AIR QUALITY IMPACTS EVALUATION

<i>Park-Wide Goals and Guidelines</i>				
Resource	No Project	Preferred Alternative	Alternative A	Alternative B
Invasive Exotic Plant Species	No Impact	No Impact	No Impact	No Impact
Vegetation Management	No Impact	No Impact	No Impact	No Impact
Cultural Resource Management	No Impact	High	High	High
Wildlife Management	No Impact	No Impact	No Impact	No Impact
Watershed/Water Quality Management	Moderate	No Impact	No Impact	No Impact
Visual Resources	No Impact	No Impact	No Impact	No Impact
Unitwide Interpretation	High	High	High	High
Visitor Services			see below	
Visitor Capacity			see below	
Park Operations			see below	
<i>Specific Area Goals and Guidelines</i>				
Management Zone	No Project	Preferred Alternative	Alternative A	Alternative B
Nimbus Dam	No Impact	No Impact	No Impact	No Impact
Nimbus Flat/Shoals	High	High	Low	High
Lake Overlook	Low	Low	Low	Low
Mississippi Bar	Moderate	Moderate	High	No Impact
Negro Bar	No Impact	Moderate	Low	No Impact
Natoma Canyon	No Impact	Low	Low	Low
Folsom Powerhouse	Moderate	Moderate	Moderate	Moderate
Natoma Shore North	No Impact	No Impact	No Impact	No Impact
Natoma Shore South	High	High	Low	No Impact
Lower Lake Natoma (AQ)	No Impact	No Impact	No Impact	No Impact
Upper Lake Natoma (AQ)	No Impact	No Impact	No Impact	No Impact
Folsom Dam	No Impact	Moderate	Moderate	Moderate
Beals Point	No Impact	Low	Low	Low
Mooney Ridge	High	No Impact	No Impact	No Impact
Granite Bay South	No Impact	Low	Low	No Impact
Granite Bay North	High	No Impact	Moderate	Low
Placer Shore	No Impact	No Impact	No Impact	No Impact
Rattlesnake Bar	Moderate	Low	Moderate	Low
North Fork Shore	Low	No Impact	No Impact	No Impact
Anderson Island	No Impact	No Impact	No Impact	No Impact
Peninsula	Moderate	Moderate	Moderate	Moderate
Darrington	No Impact	No Impact	No Impact	No Impact
Skunk Hollow/Salmon Falls	Moderate	Moderate	Moderate	Moderate
El Dorado Shore	Moderate	No Impact	Moderate	Low
Brown's Ravine	Low	Low	Low	Low
Mormon Island Cove	Low	No Impact	High	Low
Mormon Island Preserve	Low	Low	Low	Low
Folsom Point	High	High	High	High
Folsom Lake (AQ)	No Impact	No Impact	No Impact	No Impact
Middle North Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Upper North Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Middle South Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Upper South Fork (AQ)	No Impact	No Impact	No Impact	No Impact

The Plan is consistent with the City of Folsom General Plan, the Sacramento County General Plan, the Placer County General Plan and the El Dorado County General Plan, which are all consistent with the SACOG Regional Comprehensive Plan Guidelines and the air districts AQMPs. In addition, the proposed project would not exceed the long-term growth projections and emissions thresholds for the three air districts. Therefore, implementation of the Plan would not conflict with any of the AQMPs, and no significant impacts would result.

Impact AIRQ-2: Implementation of the Plan would involve the execution of a prescribed burn program, and construction of additional facilities and site improvements that could generate increased emissions of air pollutants (Significance Criteria AIRQ-b and AIRQ-d).

Prescribed Burn Emissions. Implementation of prescribed burns to control invasive exotic plant species and enhance native habitat could result in increased emissions of air pollutants. Prescribed burn BMPs would be implemented to minimize any impacts to air quality resulting from this management practice.

Construction Equipment Emissions. The impacts of the Plan buildout are actually a summary of individual actions that would be undertaken throughout this area as part of the Plan's implementation, as opposed to an individual project with project-specific construction information occurring in a single location. Therefore, it is not feasible to accurately quantify the proposed Plan-related fugitive dust caused by construction that may occur at any given time. Construction impacts would actually result from a number of different development projects occurring at any given time at different locations within the planning area.

Construction-related air quality impacts include:

- Particulate emissions in the form of fugitive dust from clearing and grading activities;
- Exhaust emissions and potential odors from construction equipment used on site, as well as from the vehicles used to transport materials to and from the site;
- Emissions associated with application of architectural coatings on buildings;
- Exhaust emissions of motor vehicles of the construction crew; and
- Airborne NOA particulates resulting from clearing and grading activities.

The Plan includes a variety of land uses, including museums, picnic and campsites, visitor centers, and recreational uses. The project would also include the construction of necessary infrastructure such as water, electricity, and storm water drainage facilities.

Construction of the Plan is expected to occur in phases over a period of many years. Emissions from the grading phase are expected to be larger than any other phase of construction due to the very large earthmoving equipment needed for grading. A peak grading day might involve disturbing 5 acres and could be characterized by the equipment shown in Table 11.G.

Building construction uses different types of equipment on site than during grading periods. Similarities do exist in terms of equipment exhaust emissions and fugitive dust emissions. However, it is anticipated that emissions during structure construction would be below the peak grading day emissions presented in Table 11.G.

The project would comply with regional rules, which would assist in reducing the short-term air pollutant emissions. Fugitive dust from a construction site must be controlled with best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. Dust suppression techniques would be implemented to prevent fugitive dust from creating a nuisance off site. Implementation of these dust suppression techniques can reduce the fugitive dust generation (and thus the PM₁₀ component) by 50 percent or more. As shown in Table 11.G, peak construction day equipment emissions would not exceed any of the air districts' daily thresholds for any of the criteria pollutants.

Table 11.G: Construction Emissions Related to 5 acres or less of Disturbance

Emissions Source	Hours or Miles per day	Emission Rates (lbs/day)				
		CO	ROC	NOx	Sox	PM10
Grading						
2 Motor Grader	8 hrs	5.2	1.4	14.9	2.5	0.8
1 Dozer/Compactor	8 hrs	3.1	0.8	7.4	1.1	0.5
1 Loader/Backhoe	8 hrs	1.6	0.5	3.2	0.4	0.3
1 Mechanic Truck	10 miles	0.13	0.008	0.031	2E-04	0.001
1 Fuel Truck	10 miles	0.13	0.008	0.031	2E-04	0.001
1 Foreman Truck	10 miles	0.13	0.008	0.031	2E-04	0.001
1 Water Truck	15 miles	0.26	0.020	0.056	4E-04	0.002
25 Haul Trucks	30 miles	8.7	0.50	2.2	0.013	0.074
40 Workers Commuting	50 miles	16	0.68	2.2	0.013	0.13
Fugitive Dust (PM ₁₀) Unmitigated						279
Fugitive Dust (PM ₁₀) Mitigated						140
Total Grading (with PM₁₀ mitigation)		35	3.9	30	4	142
Construction						
1 Cranes	8 hrs	1.3	0.4	4.0	0.7	0.2
1 Paver	8 hrs	1.8	0.5	4.1	0.6	0.3
2 Miscellaneous	8 hrs	6.2	1.3	14.7	2.2	0.7
1 Mechanic Truck	10 miles	0.13	0.008	0.031	2E-04	0.001
1 Fuel Truck	10 miles	0.13	0.008	0.031	2E-04	0.001
1 Foreman Truck	10 miles	0.13	0.008	0.031	2E-04	0.001
1 Water Truck	15 miles	0.26	0.020	0.056	4E-04	0.002
40 Workers Commuting	50 miles	16	0.68	2.2	0.013	0.128
Total Construction		25	2.9	25	3.5	1.3
PCAPCD Thresholds		--	--	--	--	--
EDCAPCD Thresholds		--	82	82	--	--
SMAQMD Thresholds		--	85	85	--	275
Significant?		No	No	No	No	No

Source: LSA Associates, Inc. October 2006

Architectural Coatings. Architectural coatings contain volatile organic compounds (VOC) that are similar to Reactive Organic Gases (ROG) and are part of the O₃ precursors. At this stage of project planning, no detailed architectural coatings information is available. Compliance with EDCAPCD, PCAPCD and SMAQMD rules on the use of architectural coatings should be considered sufficient.

Mitigation Measure AIRQ-2a: The PCAPCD has not established any emissions threshold for construction activities associated with a proposed project. They only state that implementation of standard conditions and feasible measures to minimize emissions during construction of the project shall be considered to have reduced the construction air quality impact to a less than significant level. The EDCAPCD and SMAQMD have both established emissions thresholds for construction activities as shown in Table 11.G. No Plan-related construction emissions exceedances are expected, as shown in Table 11.G, so no additional mitigation measures shall be required for these latter two air districts.

The project shall comply with regional rules that assist in reducing short-term air pollutant emissions as applicable: Rule 228 for Fugitive Dust Control (PCAPCD), Rule 223 for Fugitive Dust Control (EDCAPCD), and Rule 403 for Fugitive Dust Control (SMAQMD). Standard district rules require that fugitive dust be controlled with best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, implementation of dust suppression techniques is required to prevent fugitive dust from creating a nuisance off site. Dust control measures applicable to the appropriate governing agency will be determined for future projects identified by the Plan. Implementation of the dust suppression techniques can reduce the fugitive dust generation (and thus the PM₁₀ component). Compliance with these rules shall reduce impacts on nearby sensitive receptors.

Emissions associated with architectural coatings shall be reduced by complying with the standards established by the EDCAPCD, PCAPCD and SMAQMD, which include using pre-coated/natural colored building materials.

Airborne Naturally-Occurring Asbestos. Clearing and grading activities related to construction may disturb asbestos bearing soil and rock material and release asbestos fibers into the air. Therefore, precautions should be taken to either minimize participation in the activity or to minimize dust disturbance for the activity, or both.

Adherence to the ARB's Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations (Section 93105 [d] and [e], Title 27, California Code of Regulations) will be required to control fugitive dust emissions during construction. In Sacramento County only, abidance to Section 93105 is not mandated by the SMAQMD if a registered geologist conducts a geologic evaluation demonstrating that the property does not contain asbestos at concentrations greater than 0.25%. Future projects

resulting from Plan implementation would comply with the following three air district asbestos and fugitive dust measures as applicable: PCAPCD, Rule 228; EDCAPCD, Rule 223; and SMAQMD, Rule 403.

Mitigation Measure AIRQ-2b: In order to offset any potential risks of exposure to, or if NOA is identified during construction activities, the following standards from Section 93105 of the ATCM For Construction, Grading, Quarrying, and Surface Mining Operations, shall be followed as precaution.

- Unpaved areas subject to vehicle traffic shall be stabilized by being kept adequately wetted, treated with a chemical dust suppressant, or covered with material that contains less than 0.25 percent asbestos;
- The speed of any vehicles and equipment traveling across unpaved areas shall be no more than fifteen (15) miles per hour unless the road surface and surrounding area is sufficiently stabilized to prevent vehicles and equipment traveling more than 15 miles per hour from emitting dust that is visible crossing the project boundaries;
- Storage piles and disturbed areas not subject to vehicular traffic shall be stabilized by being kept adequately wetted, treated with a chemical dust suppressant, or covered with material that contains less than 0.25 percent asbestos;
- Prior to any ground disturbance, sufficient water shall be applied to the area to be disturbed to prevent visible emissions from crossing the property line;
- Areas to be graded or excavated shall be kept adequately wetted to prevent visible emissions from crossing the property line;
- Equipment shall be washed down before moving from the property onto a paved public road;
- Visible track-out on the paved public road shall be cleaned using wet sweeping or a High efficiency particulate air (HEPA) filter equipped vacuum device within twenty-four (24) hours; and
- For disturbance to areas greater than one acre, an Asbestos Dust Mitigation Plan shall be submitted to and approved by the district before the start of any construction or grading activity. The provisions of the dust mitigation plan will be implemented at the beginning and maintained throughout the duration of the construction or grading activity.

The potential for encountering NOA during project construction within the Unit shall be mitigated to a less-than-significant impact by the implementation of Mitigation Measure AIRQ-2, per California's dust abatement guidelines for asbestos. Future projects resulting from Plan implementation would comply with the fugitive dust measures established by the three air district asbestos as applicable.

Impact AIRQ-3: Implementation of the Plan would involve the operation of additional facilities and site improvements that could generate increased emissions of air pollutants (Significance Criteria AIRQ-b and AIRQ-d).

Long-Term Regional Air Quality Impacts. Long-term air emission impacts are those associated with stationary sources and mobile sources related to any change related to the Plan. The stationary-source emissions would come from the consumption of natural gas and electricity. Based on the traffic study prepared for this project (LSA 2006), the No Project/Current General Plan would generate 5,756 daily trips. As discussed in the traffic section, several new facilities are proposed which could generate a significant number of trips and could have a significant impact on the traffic-related emissions. A more detailed environmental analysis would be conducted at the project level. See Mitigation Measure AIRQ-3 about potential impacts for the Preferred Alternative, Alternative 3 and Alternative 4.

Using the ARB model URBEMIS2002, emissions associated with the No Project/Current General Plan project-related vehicular trips were calculated and are included in Table 11.H. It should be noted that Table 11.H lists the higher emissions for each criteria pollutant during summer or winter. As shown, the No Project/Current General Plan's emissions would not exceed any of the air districts' daily emissions thresholds. Therefore, the No Project/Current General Plan's impact is less than significant, and no mitigation measures are required.

Table 11.H: Operational Emissions for the Year 2027

Source	Pollutants, lbs/day			
	ROG	NO _x	CO	PM ₁₀
No Project/Current General Plan				
Stationary Sources	0.09	0.01	0.63	0
Mobile Sources	16	20	150	59
<i>Total Emissions</i>	16	20	151	59
PCAPCD Thresholds	82	82	550	82
EDCAPCD Thresholds	82	82	--	--
SMAQMD Thresholds	85	85	--	275
<i>Exceeds Any Threshold?</i>	No	No	No	No

Source: LSA Associates, Inc., October 2006.

Mitigation Measure AIRQ-3: As discussed in the traffic section, several new facilities are proposed which could generate a significant number of trips and could have a significant impact on the traffic-related air emissions. At this time, these projects have not been defined sufficiently that they can be properly analyzed. Air quality impact analyses shall be prepared as needed consistent with all applicable laws and regulations including CEQA. The air quality impact analysis shall be submitted to the appropriate approving agency for review and approval prior to implementation and use of the new facilities.

Impact AIRQ-4: Implementation of the Plan would involve the operation of additional facilities and site improvements that could cause CO Hot spots (Significance Criteria AIRQ-b and AIRQ-d).

Vehicular trips associated with the proposed project would contribute to the congestion at intersections and along roadway segments in the project vicinity. Localized air quality effects would occur when emissions from vehicular traffic increase in local areas as a result of the Plan. The primary mobile source pollutant of local concern is CO, which is a direct function of vehicle idling time and, thus, traffic flow conditions. CO transport is extremely limited; it disperses rapidly with distance from the source under normal meteorological conditions. However, under certain extreme meteorological conditions, CO concentrations proximate to a congested roadway or intersection may reach unhealthful levels affecting local sensitive receptors (residents, school children, the elderly, hospital patients, etc.). Typically, high CO concentrations are associated with roadways or intersections operating at unacceptable levels of service or with extremely high traffic volumes. In areas with high ambient background CO concentration, modeling is recommended to determine a project's effect on local CO levels. However, in the vicinity of the Unit, ambient background CO concentrations are low, as shown in Table 11.E, less than 13% of the one-hour State CO AAQS of 20 ppm. Given the low ambient CO levels in the project area, an increase in boat CO emissions under any of the alternatives would not result in any exceedance of the State or federal standards and would remain less than significant.

Additionally, as shown in Tables 10.A and 10.B in the traffic section, there is very little change in the level of service (LOS) associated with any of the alternatives of the Plan for the roadways studied. Since there is effectively no significant change with any of the project alternatives to the LOS for all the roadways studied, there will be no significant change in the traffic flow conditions. Therefore, no air quality impact is expected and no mitigation measures are required.

Impact AIRQ-5: Implementation of the Plan would not result in cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or State ambient air quality standard (Significance Criteria AIRQ-c).

The Plan would contribute criteria pollutants to the area during temporary project construction. A number of individual projects in the area may be under construction simultaneously with the proposed project. Depending on construction schedules and actual implementation of projects in the area, generation of fugitive dust and pollutant emissions during construction may result in substantial short-term increases in air pollutants. This would be a contribution to short-term cumulative air quality impacts.

The project would also result in increases in long-term operational emissions. The project would contribute cumulatively to local and regional air quality degradation.

Both Basins are in nonattainment for PM_{10} and ozone at the present time. Construction of the proposed project, in conjunction with other planned developments within the cumulative study area, would contribute to the existing nonattainment status. Therefore, the proposed project would exacerbate nonattainment of air quality standards within both Basins and contribute to adverse cumulative air quality impacts.

The Plan would have less than significant short-term construction air quality impacts after implementation of the feasible mitigation measures. The long-term operation of the project would not exceed the any air district thresholds, the proposed project would have less than significant long-term operational air quality impacts related to vehicle emissions.

Implementation of the above listed guidelines and mitigation measures would reduce air quality impacts to less than significant levels. The conditions included in the Significance Criteria (AIRQ-a through AIRQ-e) have been addressed.

4.4.12 Noise

Sound is increasing to such disagreeable levels in our environment that it can threaten our quality of life. Noise is usually defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, and sleep. To the human ear, sound has two significant characteristics: pitch and loudness. Pitch is generally an annoyance, while loudness can affect our ability to hear. Pitch is the number of complete vibrations or cycles per second of a wave that result in the tone's range from high to low. Loudness is the strength of a sound that describes a noisy or quiet environment and is measured by the amplitude of the sound wave. Loudness is determined by the intensity of the sound waves combined with the reception characteristics of the human ear. Sound intensity refers to how hard the sound wave strikes an object, which in turn produces the sound's effect. This characteristic of sound can be precisely measured with instruments. The analysis of a project defines the noise environment of the project area in terms of sound intensity and its effect on adjacent sensitive land uses.

4.4.12.1 Affected Environment

4.4.12.1.1 *Setting*

MEASUREMENT OF SOUND

Sound intensity is measured through the A-weighted scale (i.e., dBA) to correct for the relative frequency response of the human ear. That is, an A-weighted noise level de-emphasizes low and very high frequencies of sound similar to the human ear's de-emphasis of these frequencies. Unlike linear units such as inches or pounds, decibels are measured on a logarithmic scale, representing points on a sharply rising curve. For example, 10 decibels are 10 times more intense than 1 decibel, 20 decibels are 100 times more intense, and 30 decibels are 1,000 times more intense. Thirty decibels represent 1,000 times as much acoustic energy as one decibel. A sound as soft as human breathing is about 10 times greater than 0 decibel. The decibel system of measuring sound gives a rough connection between the physical intensity of sound and its perceived loudness to the human ear. A 10-decibel increase in sound level is perceived by the human ear as a doubling of the loudness of the sound. Ambient sounds generally range from 30 dBA (very quiet) to 100 dBA (very loud).

Sound levels are generated from a source, and their decibel level decreases as the distance from that source increases. Sound dissipates exponentially with distance from the noise source. For a single point source, sound levels decrease approximately six decibels for each doubling of distance from the source. This drop-off rate is appropriate for noise generated by stationary equipment. If noise is produced by a line source such as highway traffic or railroad

operations, the sound decreases three decibels for each doubling of distance in a hard site environment. Line source noise in a relatively flat environment with absorptive vegetation decreases four and one-half decibels for each doubling of distance.

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. However, the predominant rating scales for human communities in the State of California are the Equivalent-Continuous sound level (L_{eq}) and Community Noise Equivalent (CNEL) based on A-weighted decibels (dBA). L_{eq} is the total sound energy of time-varying noise over a sample period. CNEL is the time-varying noise over a 24-hour period, with a weighting factor of 5 dBA applied to the hourly L_{eq} for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours) and with a weighting factor of 10 dBA from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours). The noise adjustments are added to the noise events occurring during the more sensitive hours. Day-night average noise (L_{dn}) is similar to the CNEL but without the adjustment for nighttime noise events. CNEL and L_{dn} are normally exchangeable and within 1 dB of each other. Other noise-rating scales of importance when assessing annoyance factor include the maximum noise level, or L_{max} , and percentile noise exceedance levels, or L_N . L_{max} is the highest exponential time-averaged sound level that occurs during a stated time period. It reflects peak operating conditions and addresses the annoying aspects of intermittent noise. L_N is the noise level that is exceeded "N" percent of the time during a specified time period. For example, the L_{10} noise level represents the noise level exceeded 10 percent of the time during a stated period. The L_{50} noise level represents the median noise level. Half the time the noise level exceeds this level and half the time it is less than this level. The L_{90} noise level represents the noise level exceeded 90 percent of the time and is considered the lowest noise level experienced during a monitoring period. It is normally referred to as the background noise level. Ambient or background noise is widespread and generally more concentrated in urban areas than in outlying, less-developed areas.

PSYCHOLOGICAL AND PHYSIOLOGICAL EFFECTS OF NOISE

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects our entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions and thereby affecting blood pressure, functions of the heart, and the nervous system. In comparison, extended periods of noise exposure above 90 dBA would result in permanent cell damage. When the noise level reaches 120 dBA, a tickling sensation occurs in the human ear even with short-term exposure. This level of noise is called the threshold of feeling. As the sound reaches 140 dBA, the tickling

sensation is replaced by the feeling of pain in the ear. This is called the threshold of pain. A sound level of 160 to 165 dBA can result in dizziness and loss of equilibrium.

Table 12.A lists “Definitions of Acoustical Terms.” Table 12.B shows “Common Sound Levels and Their Noise Sources.” Table 12.C shows “Land Use Compatibility for Exterior Community Noise” recommended by the California Department of Health, Office of Noise Control.

Table 12.A: Definitions of Acoustical Terms

Term	Definitions
Decibel, dB	A unit of level that denotes the ratio between two quantities that are proportional to power; the number of decibels is 10 times the logarithm (to the base 10) of this ratio.
Frequency, Hz	Of a function periodic in time, the number of times that the quantity repeats itself in one second (i.e., number of cycles per second).
A-Weighted Sound Level, dBA	The sound level obtained by use of A-weighting. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this report are A-weighted, unless reported otherwise.
L_{01} , L_{10} , L_{50} , L_{90}	The fast A-weighted noise levels that are equaled or exceeded by a fluctuating sound level 1 percent, 10 percent, 50 percent, and 90 percent of a stated time period.
Equivalent Continuous Noise Level, L_{eq}	The level of a steady sound that, in a stated time period and at a stated location, has the same A-weighted sound energy as the time-varying sound.
Community Noise Equivalent Level, CNEL	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 5 dBA to sound levels occurring in the evening from 7:00 p.m. to 10:00 p.m. and after the addition of 10 dBA to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.
Day/Night Noise Level, L_{dn}	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 10 dBA to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.
L_{max} , L_{min}	The maximum and minimum A-weighted sound levels measured on a sound level meter, during a designated time interval, using fast time averaging.
Ambient Noise Level	The all encompassing noise associated with a given environment at a specified time, usually a composite of sound from many sources at many directions, near and far; no particular sound is dominant.
Intrusive	The noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: Handbook of Acoustical Measurements and Noise Control 1991.

Table 12.B: Common Sound Levels and Their Noise Sources

Noise Source	A-Weighted Sound Level in Decibels	Noise Environment	Subjective Evaluation
Near Jet Engine	140	Deafening	128 times as loud
Civil Defense Siren	130	Threshold of Pain	64 times as loud
Hard Rock Band	120	Threshold of Feeling	32 times as loud
Accelerating Motorcycle at a Few Feet Away	110	Very Loud	16 times as loud
Pile Driver; Noisy Urban Street/Heavy City Traffic	100	Very Loud	8 times as loud
Ambulance Siren; Food Blender	95	Very Loud	
Garbage Disposal	90	Very Loud	4 times as loud
Freight Cars; Living Room Music	85	Loud	
Pneumatic Drill; Vacuum Cleaner	80	Loud	2 times as loud
Busy Restaurant	75	Moderately Loud	
Near Freeway Auto Traffic	70	Moderately Loud	Baseline
Average Office	60	Quiet	One-half as loud
Suburban Street	55	Quiet	
Light Traffic; Soft Radio Music in Apartment	50	Quiet	One-quarter as loud
Large Transformer	45	Quiet	
Average Residence without Stereo Playing	40	Faint	One-eighth as loud
Soft Whisper	30	Faint	
Rustling Leaves	20	Very Faint	
Human Breathing	10	Very Faint	Threshold of Hearing
	0	Very Faint	

Source: Compiled by LSA Associates, Inc. 1998.

Table 12.C: Land Use Compatibility for Exterior Community Noise

Land Use Category	Noise Range (Ldn or CNEL), dB			
	I	II	III	IV
Passively-used open spaces	50	50–55	55–70	70+
Auditoriums, concert halls, amphitheaters	45–50	50–65	65–70	70+
Residential: low-density single-family, duplex, mobile homes	50–55	55–70	70–75	75+
Residential: multifamily	50–60	60–70	70–75	75+
Transient lodging: motels, hotels	50–60	60–70	70–80	80+
Schools, libraries, churches, hospitals, nursing homes	50–60	60–70	70–80	80+
Actively used open spaces: playgrounds, neighborhood parks	50–67	—	67–73	73+
Golf courses, riding stables, water recreation, cemeteries	50–70	—	70–80	80+
Office buildings, business commercial and professional	50–67	67–75	75+	—
Industrial, manufacturing, utilities, agriculture	50–70	70–75	75+	—

Source: Office of Noise Control, California Department of Health 1976.

Noise Range I—Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

Noise Range II—Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.

Noise Range III—Normally Unacceptable: New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Noise Range IV—Clearly Unacceptable: New construction or development should generally not be undertaken.

NOISE LEVELS WITHIN THE UNIT

Noise monitoring data indicates that noise levels within the Unit are generally low to moderate, typical of rural areas. However, there are locations at the interface of the Unit and

surrounding lands where noise is an issue. In these locations, park users are affected by noise coming from beyond the Unit or neighbors are affected by noise coming from within the Unit. Primary noise sources within the Unit include traffic along neighboring roadways, airplanes flying overhead, boats on the lake and construction. Therefore, for park users, noise coming from outside the Unit is limited to those locations proximate to major routes that parallel or cross the Unit. For neighbors, noise coming from inside the Unit is generally the result of weekend traffic backups at popular day use facilities that reach capacity on peak season weekends and from water-based activities on Folsom Lake.

Ambient noise monitoring was conducted by LSA staff in the Unit vicinity between 9:00 a.m. and 6:00 p.m. on September 19, 2002 to document the existing noise environment. A total of ten locations around Folsom Lake were selected for ambient noise monitoring. Table 12.D lists the noise monitoring results at these ten locations. The measured noise data shows that the average noise level measured ranged from 37.2 dBA L_{eq} to 65.3 dBA L_{eq} .

Table 12.D: Ambient Noise Levels

Ambient Noise Levels, dBA				
Site	L_{eq}	L_{max}	L_{min}	Noise Sources
1. Nimbus Dam Overlook; hillside above Lake Natoma	51.2	55.7	31.9	Traffic on Hazel Avenue and Highway 50; autos entering and exiting overlook parking lot; birds
2. Willow Creek State Park; approximately 50 feet from edge of water	42.9	54.2	37.9	Traffic on Folsom Boulevard; autos within the park; pedestrian traffic; birds
3. Approximately 80 feet east of Riley Street and Rainbow Bridge; south side of American River	54.6	62.4	44.9	Traffic on Riley Street and Rainbow Bridge; birds
4. Top of levee near Dam Road and Natoma Street intersection	52.7	65.7	39.1	Traffic along Dam Road and Riley Street; boats on the lake; airplane overflight; birds
5. Lake Hills Drive at Shoreline Pointe Road; a residential area with view of lake	65.3	85.8	32.5	Lawn mower; autos; birds; one cement truck drove up and turned around that contributed the loud noise
6. Salmon Falls parking lot	38.6	55.0	31.5	Autos on Salmon Falls Road; construction equipment on hillside above parking lot; birds
7. Peninsula Campground; boat launch area	44.4	59.8	32.7	Boats on the lake; waves hitting shoreline; birds
8. Rattlesnake Bar recreation area	42.5	55.9	32.5	Boats on the lake; birds
9. Granite Beach	37.2	57.3	31.8	Boats on the lake; pedestrians; birds
10. Douglas Boulevard at Auburn Folsom Road	60.1	70.9	52.2	Traffic on Douglas Boulevard and Auburn Folsom Road

Source: LSA Associates, Inc., September 2002.

Noise is known to have several adverse effects on people including hearing loss, speech and sleep interference, physiological responses, and annoyance. Based on these known adverse effects, the federal government, the State of California and many local governments have established criteria to protect public health and safety and to prevent disruption of certain activities. The Unit is part of the State Park System and comprised of lands owned by both

the State and federal government. It is not subject to the local noise ordinances established by City of Folsom, and Sacramento, El Dorado, and Placer Counties. The Noise Elements of the General Plans and local noise ordinances do not determine the standards by which noise level impacts must be measured. Rather, the standards by which the noise level impacts must be measured will be in accordance with State regulations only.

SENSITIVE LAND USES IN THE PROJECT VICINITY

Certain land uses are considered more sensitive to noise than others. Examples of these include residential areas, educational facilities, hospitals, childcare facilities, and senior housing. There are several locations in the Unit where residential development is immediately adjacent to the Unit boundary.

OVERVIEW OF THE EXISTING NOISE ENVIRONMENT

The primary existing noise sources in the Unit area are transportation facilities. Traffic on local streets is the dominant source contributing to area ambient noise levels in the project vicinity. Noise from motor vehicles is generated by engine vibrations, the interaction between the tires and the road, and the exhaust system. In addition, noise is generated by the use of recreational equipment, such as boats, personal watercraft and off-road motorcycles. These uses also contribute to the ambient noise in the project area. The Unit is approximately 10 miles from the Mather Airport⁶ in the City of Rancho Cordova and 12 miles from the Lincoln Municipal Airport in the City of Lincoln. These airports are both used for general aviation only (including commercial aircraft).

Noise levels on and in the vicinity of the project site will change as a result of the proposed project. Potential noise impacts associated with the project include road noise due to increases in on-road vehicular traffic, recreational equipment and construction noise.

EXISTING TRAFFIC NOISE

Existing traffic noise levels in the study area are listed in Table 12.E. The FHWA highway traffic noise prediction model (FHWA RD-77-108) was used to evaluate highway traffic-related noise conditions in the project vicinity. This model requires various parameters, including traffic volumes, vehicle mix, vehicle speed, and roadway geometry to compute typical equivalent noise levels during daytime, evening, and nighttime hours. This screening-level traffic noise model assumes that the noise sources and receptor (contour) locations are

⁶ The Unit is within the regional location of the Mather Airport Master Plan and there are few arrival and departure flight tracks above the SRA. However, the estimated noise exposure does not extend north of U.S Highway 50 (Draft Report Mather Airport Master Plan, Leigh Fisher Associates, October 2003).

at the same level, and provides the distance to the noise contour without any intervening structure. Based on LSA's past experience with traffic noise projections using this model, the projected noise levels using "soft site" conditions have been close to the calibrated noise measurement results; therefore, no calibration is necessary for every model run at this screening-level analysis. For a more site-specific, detailed analysis with known receptor locations, the calibration can be done with noise measurement and concurrent traffic count. The existing average daily traffic (ADT) volumes in the area were taken from the *Traffic Impact Analysis* (Section 4.4.10) prepared for the project (LSA, October 2006). The resultant noise levels are weighted and summed over 24-hour periods to determine the CNEL values. As shown in Table 12.E, traffic noise along these roadway segments is generally moderate. The 70 dBA CNEL traffic noise contour is confined within the roadway right-of-way for some of the roadway segments, with the 70 dBA CNEL extending as far as 104 feet from the roadway centerline along Hazel Avenue.

Table 12.E: Existing (2005) Traffic Noise Levels

Roadway Segment	ADT	Centerline to 70 CNEL (Feet)	Centerline to 65 CNEL (Feet)	Centerline to 60 CNEL (Feet)	CNEL (dBA) 50 Feet from Outermost Lane
Hazel Ave. north of Gold Country Blvd.	37,200	100	213	458	72.7
Hazel Ave. south of Gold Country Blvd.	39,300	104	221	475	72.9
Auburn-Folsom Blvd. between Laird Rd. and Douglas Blvd.	14,600	< 50 ⁷	96	206	68.5
Auburn-Folsom Blvd. between Douglas Blvd. and Natoma St.	24,400	77	162	346	70.8
Folsom Blvd. between Natoma St. and Blue Ravine Rd.	31,200	90	190	408	71.9
Folsom Blvd. between Blue Ravine Rd. and I-50	34,900	98	205	439	72.0
Folsom Blvd. south of I-50	10,400	< 50	94	197	66.7
Douglas Blvd. between Hazel Ave. and Auburn-Folsom Blvd.	26,000	69	142	303	69.5
Douglas Blvd. east of Auburn-Folsom Blvd.	10,400	< 50	77	164	67.1
Natoma St. east of Auburn-Folsom Blvd.	14,300	< 50	95	203	68.4
Blue Ravine Rd. east of Auburn-Folsom Blvd.	14,400	55	114	244	68.5
Green Valley Rd. between Natoma St. and Salmon Falls Rd.	18,200	52	111	239	69.5
Salmon Falls Rd. north of Green Valley Rd.	2,700	< 50	< 50	67	61.2
El Dorado Hills Blvd. south of Green Valley Rd.	11,900	< 50	84	180	67.1
El Dorado Hills Blvd. north of I-50	38,000	103	217	465	72.3

Source: LSA Associates, Inc., October 2006.

⁷ Traffic noise within 50 feet of the roadway centerline should be evaluated with site-specific information.

4.4.12.1.2 *Regulatory Considerations*

The applicable noise standards governing the project site are the criteria in the State of California Administrative Codes.

THE STATE OF CALIFORNIA

California Administrative Code includes Code 4320 which includes measures to insure peace and adequate rest for visitors. As enforced by this code, no person shall, at any time, without the specific permission of the Department use outside machinery or electronic equipment at a sound volume which is likely to be disturbing to others, nor operate an engine driven electric generator which emits a disturbing level sound volume between the hours of 8 p.m. and 10 a.m.

California Administrative Code 654.05, pertaining to boats out of the California Boating Law, forbids access boats of various noise levels within one mile of California coastline. Boats with engines manufactured before January 1, 1993, may not produce noise greater than 90 dB within one mile of the shore. Boats with engines manufactured after January 1, 1993, may not produce noise greater than 88 dB within one mile of the shore. A recreational boat may not produce a noise level of 75 dB measured as specified in the Society of Automotive Engineers Recommended Practice SAE J1970 (Shoreline Sound Level Measurement Procedure). However, a measurement of noise level that is in compliance with the noise level of 75 dB does not preclude the conducting of a test of noise levels relative to the date it was manufactured. For purposes of enforcement, the code also calls for a law enforcement office who is proficient in the use of a decibel measuring device. Also, the code notes that the Department may revise the measurement procedure per advances in technology.

State Parks is not subject to municipal code noise ordinances. The following county and city regulations are provided for reference only.

SACRAMENTO COUNTY

The Noise Element of the Sacramento General Plan (1993, amended 1998) contains policies designed to protect County citizens from the harmful effects of excessive noise exposure and to protect the County's economic base by preventing incompatible land uses adjacent to existing or planned noise producing uses. The Noise Element limits noise created by new transportation sources to 60 dBA L_{dn} /CNEL at the outdoor activity areas of any affected residential lands or land use. When a practical application of the best available noise reduction technology cannot achieve the 60 dBA L_{dn} /CNEL standard, then an exterior level of 65 dBA L_{dn} /CNEL standard may be allowed in outdoor activity areas. Noise created by

new non-transportation sources shall be mitigated so as not to exceed exterior noise level standards of 50 dBA L_{50} (70 dBA L_{max}) during daytime hours (7 a.m. to 10 p.m.) and 45 dBA L_{50} (65 dBA L_{max}) during nighttime hours (10 p.m. to 7 a.m.).

Chapter 6.68 (Noise Control) of the Sacramento County Code contains noise standards designed to assess noise complaints. Specifically, SCC 6.68.070 provides exterior noise standards of 55 dBA from 7 a.m. to 10 p.m. and 50 dBA from 10 p.m. to 7 a.m. for all residential land uses. Noise levels are not allowed to exceed 20 dBA above the exterior noise level standard at any time, 15 dBA above the standard for a cumulative period of 1 minute per hour, 10 dBA above the standard for a cumulative period of 5 minutes per hour, 5 dBA above the standard for a cumulative period of 15 minutes per hour, and the standard for a cumulative period of 30 minutes per hour.

EL DORADO COUNTY

The El Dorado County General Plan adopted in July, 2004 includes a Health, Safety and Noise Element. The goal of the noise sub-element is to ensure that County residents are not subjected to noise beyond acceptable levels. In its Noise Element, El Dorado County lists maximum allowable noise exposure for transportation noise sources (see Table 12.F) as well as the performance standards for noise sensitive land uses (i.e., residences, schools, hospitals) affected by non-transportation noise sources (see Table 12.G)

Table 12.F: El Dorado County Maximum Allowable Noise Exposure for Transportation Noise Sources

Land Use	Outdoor Activity Areas ¹		Interior Spaces	
	L_{dn} /CNEL, dBA	L_{dn} /CNEL	L_{dn} /CNEL	L_{eq} , dBA ²
Residential	60 ³	45	--	--
Transient Lodging	60 ³	45	--	--
Hospitals, Nursing Homes	60 ³	45	--	--
Theaters, Auditoriums, Music Halls	--	--	--	35
Churches, Meeting Halls, Schools	60 ³	--	--	40
Office Buildings	--	--	--	45
Libraries, Museums	--	--	--	45
Playgrounds, Neighborhood Parks	70	--	--	--

¹ In Communities and Rural Centers, where the location of outdoor activity areas is not clearly defined, the exterior noise level standard shall be applied to the property line of the receiving land use. For residential uses with front yards facing the identical noise source, an exterior noise level criterion of 65 dBA L_{dn} /CNEL shall be applied at the building façade, in addition to a 60 dBA L_{dn} /CNEL criterion at the outdoor activity area. In rural regions, an exterior noise level criterion of 60 dBA L_{dn} /CNEL shall be applied at a 100 foot radius from the residence.

² As determined for a typical worst-case hour during periods of use.

³ Where it is not possible to reduce noise in outdoor activity areas to 60 dBA L_{dn} /CNEL or less using a practical application of the best available noise reduction measures, an exterior noise level of up to 65 dBA L_{dn} /CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.

Source: El Dorado County General Plan, 2004

Table 12.G: El Dorado County Noise Level Performance Protection Standards for Noise Sensitive Land Uses Affected by Non-Transportation* Noise Sources

Noise Level Descriptor	Daytime 7 am to 7 pm		Evening 7 pm to 10 pm		Night 10 pm to 7 am	
	Community	Rural	Community	Rural	Community	Rural
Hourly L_{eq} , dB	55	50	50	45	45	40
Maximum Level, dB	70	60	60	55	55	50

Each of the above noise levels shall be lowered by 5 dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses.

The County can impose noise level standards, which are up to 5 dB less than those specified above, based upon determination of existing low ambient noise levels in the vicinity of the project site.

In Community Areas, the exterior noise level standard shall be applied to the property line of the receiving property. In Rural Areas, the exterior noise level standard shall be applied at a point 100 feet away from the residence. The above standards shall be measured only on property containing a noise sensitive land use. This measurement standard may be amended to provide for measurement at the boundary of a recorded noise easement between all affected property owners and approved by the County.

*Note: For the purposes of the Noise Element, transportation noise sources are defined as traffic on public roadways, railroad line operations and aircraft in flight. Control of noise from these sources is preempted by Federal and State regulations. Control of noise from facilities of regulated public facilities is preempted by California Public Utilities Commission (CPUC) regulations. All other noise sources are subject to local regulations. Non-transportation noise sources may include industrial operations, outdoor recreation facilities, HVAC units, schools, hospitals, commercial land uses, other outdoor land use, etc.

Source: El Dorado County General Plan, 2004

PLACER COUNTY

Placer County has adopted a Noise Element as part of its General Plan (2005). Goal 12.A of the Noise Element states “To protect County residents from the harmful and annoying effects of exposure to excessive noise.” To achieve this goal, the County shall not allow development of new noise sensitive uses where the noise level due to non-transportation noise sources will exceed the level standards of Table 12.H as measured immediately within the property line of the new development. In addition, new development of noise sensitive land uses shall not be permitted in areas exposed to existing or projected levels of transportation noise sources that exceed the levels specified in Table 12.I.

Table 12.H: Placer County Allowable Noise Levels within Specific Zone Districts Applicable to New Projects Affected by or Including Non-transportation Noise Sources

Zone or District ¹ of Receptor	Property Line of Receiving Use	Interior Spaces ²
Residential Adjacent to Industrial ³	60	45
Other Residential ⁴	50	45
Office/Professional	70	45
Transient Lodging	65	45
Neighborhood Commercial	70	45
General Commercial	70	45
Heavy Commercial	75	45
Limited Industrial	75	45

**Table 12.H: Placer County Allowable Noise Levels within Specific Zone Districts
Applicable to New Projects Affected by or Including Non-transportation Noise Sources**

Zone or District ¹ of Receptor	Property Line of Receiving Use	Interior Spaces ²
Highway Services	75	45
Shopping Center	70	45
Industrial	--	45
Industrial Park	75	45
Industrial Reserve	--	--
Airport	--	45
Unclassified	--	--
Farm	(see footnote 6)	--
Agriculture Exclusive	(see footnote 6)	--
Forestry	--	--
Timberland Preserve	--	--
Recreation and Forestry	70	--
Open Space	--	--
Mineral Reserve	--	--

Notes:

- Except where noted otherwise, noise exposures will be those that occur at the property line of the receiving use.

Where existing transportation noise levels exceed the standards of this table, the allowable L_{dn} shall be raised to the same level as that of the ambient level.

If the noise source generated by, or affecting the uses shown above consists primarily of speech or music, or if the noise source is impulsive in nature, the noise standards shown above will be decreased by 5 dB.

Where a use permit has established noise level standards for an existing use, those standards shall supersede the levels specified in Table 9-1 and 9-3. Similarly, where an existing use, which is not subject to a use permit causes noise in excess of allowable levels, said excess noise shall be considered the allowable level. If a new development is proposed which will be affected by noise from such an existing use, it will ordinarily be assumed that the noise levels already existing or those levels allowed by the existing use permit, whichever are greater, are those levels actually produced by the existing use.

Existing industry located in industrial zones will be given the benefit of the doubt in being allowed to emit increased noise consistent with the state of the art at the time of expansion. In no case will expansion of an existing industrial operation be cause to decrease allowable noise emission limits. Increased emissions above those normally allowable should be limited to a one-time 5 dB increase at the discretion of the decision-making body.

The noise level standards applicable to land uses containing incidental residential uses, such as caretaker dwellings at industrial facilities and homes on agriculturally zoned land, shall be the standards applicable to the zone district, not those applicable to residential uses.

Where no noise level standards have been provided for a specific zone district, it is assumed that the interior and/or exterior spaces of these uses are effectively insensitive to noise.

¹Overriding policy on interpretation of allowable noise levels: Industrial-zoned properties are confined to unique areas of the County, and are irreplaceable. Industries which provide primary wage-earner jobs in the County, if forced to relocate, will likely be forced to leave the County. For this reason, industries operating upon industrial zoned properties must be afforded reasonable opportunity to exercise the rights/privileges conferred upon them by their zoning. Whenever the allowable noise levels herein fall subject to interpretation relative to industrial activities, the benefit of the doubt shall be afforded to the industrial use.

Where an industrial use is subject to infrequent and unplanned upset or breakdown of operations resulting in increased noise emissions, where such upsets and breakdowns are reasonable considering the type of industry, and where the industrial use exercises due diligence in preventing as well as correcting such upsets and breakdowns, noise generated during such upsets and breakdowns shall not be included in calculations to determine conformance with allowable noise levels.

² Interior spaces are defined as any locations where some degree of noise-sensitivity exists. Examples include all habitable rooms

**Table 12.H: Placer County Allowable Noise Levels within Specific Zone Districts
Applicable to New Projects Affected by or Including Non-transportation Noise Sources**

Zone or District ¹ of Receptor	Property Line of Receiving Use	Interior Spaces ²
of residences, and areas where communication and speech intelligibility are essential, such as classrooms and offices.		
³ Noise from industrial operations may be difficult to mitigate in a cost-effective manner. In recognition of this fact, the exterior noise standards for residential zone districts immediately adjacent to industrial, limited industrial, industrial park, and industrial reserve zone districts have been increased by 10 dB as compared to residential districts adjacent to other land uses.		
For purposes of the Noise Element, residential zone districts are defined to include the following zoning classifications: AR, R-1, R-2, R-3, FR, RP, TR-1, TR-2, TR-3, and TR-4.		
⁴ Where a residential zone district is located within an -SP combining district, the exterior noise level standards are applied at the outer boundary of the -SP district. If an existing industrial operation within an -SP district is expanded or modified, the noise level standards at the outer boundary of the -SP district may be increased as described above in these standards.		
Where a new residential use is proposed in an -SP zone, an Administrative Review Permit is required, which may require mitigation measures at the residence for noise levels existing and/or allowed by use permit as described under "NOTES," above, in these standards.		
⁵ State of the art should include the use of modern equipment with lower noise emissions, site design, and plant orientation to mitigate offsite noise impacts, and similar methodology.		
⁶ Normally, agricultural uses are noise insensitive and will be treated in this way. However, conflicts with agricultural noise emissions can occur where single-family residences exist within agricultural zone districts. Therefore, where effects of agricultural noise upon residences located in these agricultural zones is a concern, an Ldn of 70 dBA will be considered acceptable outdoor exposure at a residence.		

Source: Placer County General Plan February, 2005

Table 12.I: Placer County Maximum Allowable Noise Exposure Transportation Noise Sources

Land Use	Outdoor Activity Areas ¹	Interior Spaces	
	L _{dn} /CNEL, dB	L _{dn} /CNEL, dB	L _{eq} , dB ²
Residential	60 ³	45	--
Transient Lodging	60 ³	45	--
Hospitals, Nursing Homes	60 ³	45	--
Theaters, Auditoriums, Music Halls	--	--	35
Churches, Meeting Halls	60 ³	45	40
Office Buildings	--	--	45
Schools, Libraries, Museums	--	--	45
Playgrounds, Neighborhood Parks	70	--	--

1 In Communities and Rural Centers, where the location of outdoor activity areas is not clearly defined, the exterior noise level standard shall be applied to the property line of the receiving land use.

2 As determined for a typical worst-case hour during periods of use.

3 Where it is not possible to reduce noise in outdoor activity areas to 60 dB L_{dn}/CNEL or less using a practical application of best available noise reduction measures, an exterior noise level of up to 65 dB L_{dn}/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.

Source: Placer County General Plan February, 2005

CITY OF FOLSOM

The Noise Element of the Folsom General Plan (1998) was developed to mitigate noise conflicts and to minimize future noise conflict by adopting policies and implementation measures designed to achieve land use compatibility for proposed development. The Noise Element designates areas as noise impacted if exposed to existing or projected exterior noise levels exceeding 60 dBA L_{dn} /CNEL, or the non-transportation related noise level standards (Table 12.J). New development of residential or other noise sensitive land uses will not be permitted in noise impacted areas unless effective measures are incorporated into the project design to reduce these noise levels.

For noise attributable to traffic on public roadways, railroad line operations, and aircraft: 60 dBA L_{dn} /CNEL or less is acceptable in outdoor activity areas and 45 dBA L_{dn} /CNEL or less is acceptable at the interior level. Where it is not possible to reduce exterior noise to 60 dBA L_{dn} /CNEL or less by incorporating a practical application of the best available noise reduction technology, an exterior noise level of up to 65 dBA L_{dn} /CNEL will be allowed.

For non-transportation noise sources: achieve compliance with the performance standards contained in Table 12.J.

When industrial, commercial or other land uses including non-transportation related noise sources are proposed that would affect areas containing noise sensitive land uses, noise levels generated by the proposed use shall not exceed the performance standards contained in Table 12.J.

Table 12.J: City of Folsom Noise Level Performance Standards for New Projects and Developments

Cumulative Number of Minutes in any One Hour Time Period	Exterior Noise Level Standards, dBA	
	Daytime 7:00 a.m. to 10:00 p.m.	Nighttime 10 p.m. to 7:00 a.m.
30	50	45
15	55	50
5	60	55
1	65	60
0	70	65

Source: City of Folsom General Plan 1988

4.4.12.2 Significance Criteria and Evaluation Methodology

Potential significant impacts associated with noise impacts have been evaluated using the following criteria (CEQA Guidelines Sections 15000-15387). Implementation of the project would have a significant effect on noise if it would cause:

- NOISE-a Exposure of persons to or generation of noise levels in excess of State and federal standards;
- NOISE-b Exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels;
- NOISE-c A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project; or
- NOISE-d A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

4.4.12.3 Environmental Evaluation and Mitigation Measures

The environmental consequences associated with implementing the project alternatives (Preferred Alternative, Alternative 3, and Alternative 4) and the No Project Alternative are summarized for Noise in Table 12.K. For all alternatives, resource categories and management zones that have an evaluation of “High” effect or “Moderate” effect are more fully described below to present the level of effect. Where necessary, mitigation measures are presented to reduce potential impacts.

4.4.12.3.1 *Impacts*

Impact NOISE-1: The development of additional recreational, interpretive, and administrative facilities that would result from Plan implementation could potentially result in increased noise levels related to increased traffic on local roadways (Significance Criteria NOISE-a and NOISE-d).

Tables 12.L through 12.O show traffic noise levels in the project vicinity for the Existing plus No Project, Existing plus Preferred Concept, Existing plus Alternative 3 and Existing plus Alternative 4 conditions. These noise levels represent the worst-case scenario, which assumes that no shielding is provided between the traffic and the location where the noise contours are drawn.

Table 12.K: NOISE IMPACTS EVALUATION

<i>Park-Wide Goals and Guidelines</i>				
Resource	No Project	Preferred Alternative	Alternative A	Alternative B
Invasive Exotic Plant Species	No Impact	No Impact	No Impact	No Impact
Vegetation Management	No Impact	No Impact	No Impact	No Impact
Cultural Resource Management	No Impact	Low	Low	Low
Wildlife Management	No Impact	No Impact	No Impact	No Impact
Watershed/Water Quality Management	No Impact	No Impact	No Impact	No Impact
Visual Resources	No Impact	No Impact	No Impact	No Impact
Unitwide Interpretation	No Impact	No Impact	No Impact	No Impact
Visitor Services			see below	
Visitor Capacity			see below	
Park Operations			see below	
<i>Specific Area Goals and Guidelines</i>				
Management Zone	No Project	Preferred Alternative	Alternative A	Alternative B
Nimbus Dam	Low	Low	Low	Low
Nimbus Flat/Shoals	Low	Low	Low	Low
Lake Overlook	Low	Low	Low	Low
Mississippi Bar	Low	Low	Low	Low
Negro Bar	Low	Low	Low	Low
Natoma Canyon	Low	Low	Low	Low
Folsom Powerhouse	Low	Low	Low	Low
Natoma Shore North	Low	Low	Low	Low
Natoma Shore South	Low	Low	Low	Low
Lower Lake Natoma (AQ)	No Impact	No Impact	No Impact	No Impact
Upper Lake Natoma (AQ)	No Impact	No Impact	No Impact	No Impact
Folsom Dam	Low	Low	Low	Low
Beals Point	Low	Low	Low	Low
Mooney Ridge	Low	Low	Low	Low
Granite Bay South	Low	Low	Low	Low
Granite Bay North	Low	Low	Low	Low
Placer Shore	Low	Low	Low	Low
Rattlesnake Bar	Low	Low	Low	Low
North Fork Shore	Low	Low	Low	Low
Anderson Island	No Impact	No Impact	No Impact	No Impact
Peninsula	Low	Low	Low	Low
Darrington	Low	Low	Low	Low
Skunk Hollow/Salmon Falls	Low	Low	Low	Low
El Dorado Shore	Low	Low	Low	Low
Brown's Ravine	Low	Low	Low	Low
Mormon Island Cove	Low	Low	Low	Low
Mormon Island Preserve	No Impact	No Impact	No Impact	No Impact
Folsom Point	Low	Low	Low	Low
Folsom Lake (AQ)	No Impact	No Impact	No Impact	No Impact
Middle North Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Upper North Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Middle South Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Upper South Fork (AQ)	No Impact	No Impact	No Impact	No Impact

Future traffic noise levels in the project vicinity would be moderate. The data in Tables 12.P through 12.T show that there is very little change in the traffic noise levels associated with implementation of any of the alternatives; all areas would increase less than 3 dBA. As changes in noise level of 3 dBA or less are not perceptible to the human ear in an outdoor environment, these noise level increases would be considered less than significant. However, future projects should undergo additional analyses to review noise impacts and propose mitigation measures as necessary.

Table 12.L: Year 2006 No Project Traffic Noise Levels

Roadway Segment	ADT	Center-line to 70 CNEL (feet)	Center-line to 65 CNEL (feet)	Center-line to 60 CNEL (feet)	CNEL (dBA) 50 feet from Centerline of Outermost Lane	Increase CNEL (dBA) 50 Feet from Outermost Lane from Baseline Conditions
Hazel Ave. north of Gold Country Blvd.	37,700	101	215	462	72.7	0.0
Hazel Ave. south of Gold Country Blvd.	40,400	106	225	484	73.0	0.1
Auburn-Folsom Blvd. between Laird Rd. and Douglas Blvd.	15,300	< 50 ⁸	99	213	68.7	0.2
Auburn-Folsom Blvd. between Douglas Blvd. and Natoma St.	25,600	79	167	357	71.0	0.2
Folsom Blvd. between Natoma St. and Blue Ravine Rd.	32,500	92	195	419	72.1	0.2
Folsom Blvd. between Blue Ravine Rd. and I-50	37,000	101	213	457	72.2	0.2
Folsom Blvd. south of I-50	10,400	< 50	94	197	66.7	0.0
Douglas Blvd. between Hazel Ave. and Auburn-Folsom Blvd.	27,100	71	146	311	69.7	0.2
Douglas Blvd. east of Auburn-Folsom Blvd.	12,700	< 50	87	188	67.9	0.8
Natoma St. east of Auburn-Folsom Blvd.	14,400	< 50	95	204	68.5	0.1
Blue Ravine Rd. east of Auburn-Folsom Blvd.	14,400	55	114	244	68.5	0.0
Green Valley Rd. between Natoma St. and Salmon Falls Rd.	18,500	52	112	241	69.6	0.1
Salmon Falls Rd. north of Green Valley Rd.	3,200	< 50	< 50	75	61.9	0.7
El Dorado Hills Blvd. south of Green Valley Rd.	12,300	< 50	86	184	67.2	0.1
El Dorado Hills Blvd. north of I-50	38,400	104	218	468	72.4	0.1

Source: LSA Associates, Inc., October 2006.

⁸ Traffic noise within 50 feet of the roadway centerline should be evaluated with site-specific information.

Table 12.M: Year 2006 Preferred Alternative Traffic Noise Levels

Roadway Segment	ADT	Center-line to 70 CNEL (feet)	Center-line to 65 CNEL (feet)	Center-line to 60 CNEL (feet)	CNEL (dBA) 50 feet from Centerline of Outermost Lane	Increase CNEL (dBA) 50 Feet from Outermost Lane from Baseline Conditions
Hazel Ave. north of Gold Country Blvd.	37,700	101	215	462	72.7	0.0
Hazel Ave. south of Gold Country Blvd.	40,400	106	225	484	73.0	0.1
Auburn-Folsom Blvd. between Laird Rd. and Douglas Blvd.	14,600	< 50 ⁹	96	206	68.5	0.0
Auburn-Folsom Blvd. between Douglas Blvd. and Natoma St.	24,400	77	162	346	70.8	0.0
Folsom Blvd. between Natoma St. and Blue Ravine Rd.	31,500	90	191	410	71.9	0.0
Folsom Blvd. between Blue Ravine Rd. and I-50	36,000	99	209	448	72.1	0.1
Folsom Blvd. south of I-50	10,400	< 50	94	197	66.7	0.0
Douglas Blvd. between Hazel Ave. and Auburn-Folsom Blvd.	26,000	69	142	303	69.5	0.0
Douglas Blvd. east of Auburn-Folsom Blvd.	10,400	< 50	77	164	67.1	0.0
Natoma St. east of Auburn-Folsom Blvd.	14,500	< 50	95	205	68.5	0.1
Blue Ravine Rd. east of Auburn-Folsom Blvd.	14,400	55	114	244	68.5	0.0
Green Valley Rd. between Natoma St. and Salmon Falls Rd.	18,200	52	111	239	69.5	0.0
Salmon Falls Rd. north of Green Valley Rd.	2,700	< 50	< 50	67	61.2	0.0
El Dorado Hills Blvd. south of Green Valley Rd.	11,900	< 50	84	180	67.1	0.0
El Dorado Hills Blvd. north of I-50	38,000	103	217	465	72.3	0.0

Source: LSA Associates, Inc., October 2006.

Table 12.N: Year 2006 Alternative 3 Traffic Noise Levels

Roadway Segment	ADT	Center-line to 70 CNEL (feet)	Center-line to 65 CNEL (feet)	Center-line to 60 CNEL (feet)	CNEL (dBA) 50 feet from Centerline of Outermost Lane	Increase CNEL (dBA) 50 Feet from Outermost Lane from Baseline Conditions
Hazel Ave. north of Gold Country Blvd.	38,400	102	218	468	72.8	0.1
Hazel Ave. south of Gold Country Blvd.	40,500	106	226	485	73.0	0.1
Auburn-Folsom Blvd. between Laird Rd. and Douglas Blvd.	14,900	< 50 ¹⁰	97	209	68.6	0.1
Auburn-Folsom Blvd. between Douglas Blvd. and Natoma St.	24,500	77	162	347	70.9	0.1
Folsom Blvd. between Natoma St. and Blue Ravine Rd.	31,900	91	193	414	72.0	0.1
Folsom Blvd. between Blue Ravine Rd. and I-50	36,300	100	210	451	72.1	0.1

⁹ Traffic noise within 50 feet of the roadway centerline should be evaluated with site-specific information.¹⁰ Traffic noise within 50 feet of the roadway centerline should be evaluated with site-specific information.

Table 12.N: Year 2006 Alternative 3 Traffic Noise Levels

Roadway Segment	ADT	Center-line to 70 CNEL (feet)	Center-line to 65 CNEL (feet)	Center- line to 60 CNEL (feet)	CNEL (dBA) 50 feet from Centerline of Outermost Lane	Increase CNEL (dBA) 50 Feet from Outermost Lane from Baseline Conditions
Folsom Blvd. south of I-50	10,400	< 50	94	197	66.7	0.0
Douglas Blvd. between Hazel Ave. and Auburn-Folsom Blvd.	26,000	69	142	303	69.5	0.0
Douglas Blvd. east of Auburn-Folsom Blvd.	10,700	< 50	78	168	67.2	0.1
Natoma St. east of Auburn-Folsom Blvd.	14,700	< 50	96	207	68.6	0.2
Blue Ravine Rd. east of Auburn-Folsom Blvd.	14,400	55	114	244	68.5	0.0
Green Valley Rd. between Natoma St. and Salmon Falls Rd.	19,400	54	116	249	69.8	0.3
Salmon Falls Rd. north of Green Valley Rd.	2,700	< 50	< 50	67	61.2	0.0
El Dorado Hills Blvd. south of Green Valley Rd.	13,100	< 50	90	192	67.5	0.4
El Dorado Hills Blvd. north of I-50	39,200	105	221	475	72.5	0.2

Source: LSA Associates, Inc., October 2006.

Table 12.O: Year 2006 Alternative 4 Traffic Noise Levels

Roadway Segment	ADT	Center-line to 70 CNEL (feet)	Center-line to 65 CNEL (feet)	Center- line to 60 CNEL (feet)	CNEL (dBA) 50 feet from Centerline of Outermost Lane	Increase CNEL (dBA) 50 Feet from Outermost Lane from Baseline Conditions
Hazel Ave. north of Gold Country Blvd.	37,200	100	213	458	72.7	0.0
Hazel Ave. south of Gold Country Blvd.	39,900	105	223	480	73.0	0.1
Auburn-Folsom Blvd. between Laird Rd. and Douglas Blvd.	14,600	< 50 ¹¹	96	206	68.5	0.0
Auburn-Folsom Blvd. between Douglas Blvd. and Natoma St.	24,400	77	162	346	70.8	0.0
Folsom Blvd. between Natoma St. and Blue Ravine Rd.	31,500	90	191	410	71.9	0.0
Folsom Blvd. between Blue Ravine Rd. and I-50	35,200	98	206	442	72.0	0.0
Folsom Blvd. south of I-50	10,400	< 50	94	197	66.7	0.0
Douglas Blvd. between Hazel Ave. and Auburn-Folsom Blvd.	26,000	69	142	303	69.5	0.0
Douglas Blvd. east of Auburn-Folsom Blvd.	10,400	< 50	77	164	67.1	0.0
Natoma St. east of Auburn-Folsom Blvd.	14,500	< 50	95	205	68.5	0.1
Blue Ravine Rd. east of Auburn-Folsom Blvd.	14,400	55	114	244	68.5	0.0
Green Valley Rd. between Natoma St. and Salmon Falls Rd.	18,200	52	111	239	69.5	0.0
Salmon Falls Rd. north of Green Valley Rd.	2,700	< 50	< 50	67	61.2	0.0
El Dorado Hills Blvd. south of Green Valley Rd.	11,900	< 50	84	180	67.1	0.0

¹¹ Traffic noise within 50 feet of the roadway centerline should be evaluated with site-specific information.

Table 12.O: Year 2006 Alternative 4 Traffic Noise Levels

Roadway Segment	ADT	Center-line to 70 CNEL (feet)	Center-line to 65 CNEL (feet)	Center-line to 60 CNEL (feet)	CNEL (dBA) 50 feet from Centerline of Outermost Lane	Increase CNEL (dBA) 50 Feet from Outermost Lane from Baseline Conditions
El Dorado Hills Blvd. north of I-50	38,000	103	217	465	72.3	0.0

Source: LSA Associates, Inc., October 2006.

Table 12.P: Year 2027 No Build Traffic Noise Levels

Roadway Segment	ADT	Center-line to 70 CNEL (feet)	Center-line to 65 CNEL (feet)	Center-line to 60 CNEL (feet)	CNEL (dBA) 50 feet from Centerline of Outermost Lane
Hazel Ave. north of Gold Country Blvd.	90,900	180	386	831	76.5
Hazel Ave. south of Gold Country Blvd.	94,700	185	397	854	76.7
Auburn-Folsom Blvd. between Laird Rd. and Douglas Blvd.	9,400	< 50 ¹²	72	154	66.6
Auburn-Folsom Blvd. between Douglas Blvd. and Natoma St.	38,100	102	217	466	72.8
Folsom Blvd. between Natoma St. and Blue Ravine Rd.	36,100	98	209	449	72.5
Folsom Blvd. between Blue Ravine Rd. and I-50	50,400	123	261	561	73.6
Folsom Blvd. south of I-50	3,800	< 50	< 50	103	62.3
Douglas Blvd. between Hazel Ave. and Auburn-Folsom Blvd.	26,100	70	143	304	69.5
Douglas Blvd. east of Auburn-Folsom Blvd.	0	< 50	< 50	< 50	26.9
Natoma St. east of Auburn-Folsom Blvd.	23,400	61	131	282	70.6
Blue Ravine Rd. east of Auburn-Folsom Blvd.	14,100	55	113	241	68.5
Green Valley Rd. between Natoma St. and Salmon Falls Rd.	31,300	74	159	343	71.8
Salmon Falls Rd. north of Green Valley Rd.	2,600	< 50	< 50	66	61.0
El Dorado Hills Blvd. south of Green Valley Rd.	20,100	56	119	255	69.3

Source: LSA Associates, Inc., October 2006.

Table 12.Q: Year 2027 No Project Traffic Noise Levels

Roadway Segment	ADT	Center-line to 70 CNEL (Feet)	Center-line to 65 CNEL (Feet)	Center-line to 60 CNEL (Feet)	CNEL (dBA) 50 Feet from Outermost Lane	Increase CNEL (dBA) 50 Feet from Outermost Lane from Baseline Conditions
Hazel Ave. north of Gold Country Blvd.	91,400	181	388	834	76.6	0.1
Hazel Ave. south of Gold Country Blvd.	95,800	186	400	861	76.8	0.1

¹² Traffic noise within 50 feet of the roadway centerline should be evaluated with site-specific information.

Table 12.Q: Year 2027 No Project Traffic Noise Levels

Roadway Segment	ADT	Center-line to 70 CNEL (Feet)	Center-line to 65 CNEL (Feet)	Center-line to 60 CNEL (Feet)	CNEL (dBA) 50 Feet from Outermost Lane	Increase CNEL (dBA) 50 Feet from Outermost Lane from Baseline Conditions
Auburn-Folsom Blvd. between Laird Rd. and Douglas Blvd.	10,200	< 50 ¹³	76	162	67.0	0.4
Auburn-Folsom Blvd. between Douglas Blvd. and Natoma St.	39,300	104	221	475	72.9	0.1
Folsom Blvd. between Natoma St. and Blue Ravine Rd.	37,400	101	214	460	72.7	0.2
Folsom Blvd. between Blue Ravine Rd. and I-50	52,400	126	268	576	73.7	0.1
Folsom Blvd. south of I-50	3,800	< 50	< 50	103	62.3	0.0
Douglas Blvd. between Hazel Ave. and Auburn-Folsom Blvd.	27,300	71	147	313	69.7	0.2
Douglas Blvd. east of Auburn-Folsom Blvd.	0	< 50	< 50	< 50	26.9	0.0
Natoma St. east of Auburn-Folsom Blvd.	23,600	61	132	284	70.6	0.0
Blue Ravine Rd. east of Auburn-Folsom Blvd.	14,100	55	113	241	68.5	0.0
Green Valley Rd. between Natoma St. and Salmon Falls Rd.	31,700	75	160	345	71.9	0.1
Salmon Falls Rd. north of Green Valley Rd.	3,000	< 50	< 50	72	61.7	0.7
El Dorado Hills Blvd. south of Green Valley Rd.	20,500	57	120	258	69.4	0.1

Source: LSA Associates, Inc., October 2006.

Table 12.R: Year 2027 Preferred Alternative Traffic Noise Levels

Roadway Segment	ADT	Center-line to 70 CNEL (Feet)	Center-line to 65 CNEL (Feet)	Center-line to 60 CNEL (Feet)	CNEL (dBA) 50 Feet from Outermost Lane	Increase CNEL (dBA) 50 Feet from Outermost Lane from Baseline Conditions
Hazel Ave. north of Gold Country Blvd.	91,300	180	387	833	76.6	0.1
Hazel Ave. south of Gold Country Blvd.	95,700	186	400	860	76.8	0.1
Auburn-Folsom Blvd. between Laird Rd. and Douglas Blvd.	9,400	< 50 ¹⁴	72	154	66.6	0.0
Auburn-Folsom Blvd. between Douglas Blvd. and Natoma St.	38,100	102	217	466	72.8	0.0
Folsom Blvd. between Natoma St. and Blue Ravine Rd.	36,400	99	210	452	72.6	0.1
Folsom Blvd. between Blue Ravine Rd. and I-50	51,400	125	265	568	73.6	0.0
Folsom Blvd. south of I-50	3,800	< 50	< 50	103	62.3	0.0
Douglas Blvd. between Hazel Ave. and Auburn-Folsom Blvd.	26,100	70	143	304	69.5	0.0

¹³ Traffic noise within 50 feet of the roadway centerline should be evaluated with site-specific information.¹⁴ Traffic noise within 50 feet of the roadway centerline should be evaluated with site-specific information.

Table 12.R: Year 2027 Preferred Alternative Traffic Noise Levels

Roadway Segment	ADT	Center-line to 70 CNEL (Feet)	Center-line to 65 CNEL (Feet)	Center-line to 60 CNEL (Feet)	CNEL (dBA) 50 Feet from Outermost Lane	Increase CNEL (dBA) 50 Feet from Outermost Lane from Baseline Conditions
Douglas Blvd. east of Auburn-Folsom Blvd.	0	< 50	< 50	< 50	26.9	0.0
Natoma St. east of Auburn-Folsom Blvd.	23,700	62	132	285	70.6	0.0
Blue Ravine Rd. east of Auburn-Folsom Blvd.	14,100	55	113	241	68.5	0.0
Green Valley Rd. between Natoma St. and Salmon Falls Rd.	31,300	74	159	343	71.8	0.0
Salmon Falls Rd. north of Green Valley Rd.	2,600	< 50	< 50	66	61.0	0.0
El Dorado Hills Blvd. south of Green Valley Rd.	20,100	56	119	255	69.3	0.0

Source: LSA Associates, Inc., October 2006.

Table 12.S: Year 2027 Alternative 3 Traffic Noise Levels

Roadway Segment	ADT	Center-line to 70 CNEL (Feet)	Center-line to 65 CNEL (Feet)	Center-line to 60 CNEL (Feet)	CNEL (dBA) 50 Feet from Outermost Lane	Increase CNEL (dBA) 50 Feet from Outermost Lane from Baseline Conditions
Hazel Ave. north of Gold Country Blvd.	92,000	181	389	838	76.6	0.1
Hazel Ave. south of Gold Country Blvd.	95,900	186	400	861	76.8	0.1
Auburn-Folsom Blvd. between Laird Rd. and Douglas Blvd.	9,800	< 50 ¹⁵	74	158	66.8	0.2
Auburn-Folsom Blvd. between Douglas Blvd. and Natoma St.	38,200	102	217	466	72.8	0.0
Folsom Blvd. between Natoma St. and Blue Ravine Rd.	36,800	100	212	455	72.6	0.1
Folsom Blvd. between Blue Ravine Rd. and I-50	51,800	125	266	571	73.7	0.1
Folsom Blvd. south of I-50	3,800	< 50	< 50	103	62.3	0.0
Douglas Blvd. between Hazel Ave. and Auburn-Folsom Blvd.	26,200	70	143	305	69.6	0.1
Douglas Blvd. east of Auburn-Folsom Blvd.	0	< 50	< 50	< 50	26.9	0.0
Natoma St. east of Auburn-Folsom Blvd.	23,900	62	133	286	70.7	0.1
Blue Ravine Rd. east of Auburn-Folsom Blvd.	14,100	55	113	241	68.5	0.0
Green Valley Rd. between Natoma St. and Salmon Falls Rd.	32,500	76	163	351	72.0	0.2
Salmon Falls Rd. north of Green Valley Rd.	2,600	< 50	< 50	66	61.0	0.0
El Dorado Hills Blvd. south of Green Valley Rd.	21,300	58	124	265	69.6	0.3

Source: LSA Associates, Inc., October 2006.

¹⁵ Traffic noise within 50 feet of the roadway centerline should be evaluated with site-specific information.

Table 12.T: Year 2027 Alternative 4 Traffic Noise Levels

Roadway Segment	ADT	Center-line to 70 CNEL (Feet)	Center-line to 65 CNEL (Feet)	Center-line to 60 CNEL (Feet)	CNEL (dBA) 50 Feet from Outermost Lane	Increase CNEL (dBA) 50 Feet from Outermost Lane from Baseline Conditions
Hazel Ave. north of Gold Country Blvd.	90,900	180	386	831	76.5	0.0
Hazel Ave. south of Gold Country Blvd.	95,200	186	398	857	76.7	0.0
Auburn-Folsom Blvd. between Laird Rd. and Douglas Blvd.	9,400	< 50 ¹⁶	72	154	66.6	0.0
Auburn-Folsom Blvd. between Douglas Blvd. and Natoma St.	38,100	102	217	466	72.8	0.0
Folsom Blvd. between Natoma St. and Blue Ravine Rd.	36,400	99	210	452	72.6	0.1
Folsom Blvd. between Blue Ravine Rd. and I-50	50,700	124	262	563	73.6	0.0
Folsom Blvd. south of I-50	3,800	< 50	< 50	103	62.3	0.0
Douglas Blvd. between Hazel Ave. and Auburn-Folsom Blvd.	26,100	70	143	304	69.5	0.0
Douglas Blvd. east of Auburn-Folsom Blvd.	0	< 50	< 50	< 50	26.9	0.0
Natoma St. east of Auburn-Folsom Blvd.	23,700	62	132	285	70.6	0.0
Blue Ravine Rd. east of Auburn-Folsom Blvd.	14,100	55	113	241	68.5	0.0
Green Valley Rd. between Natoma St. and Salmon Falls Rd.	31,300	74	159	343	71.8	0.0
Salmon Falls Rd. north of Green Valley Rd.	2,600	< 50	< 50	66	61.0	0.0
El Dorado Hills Blvd. south of Green Valley Rd.	20,100	56	119	255	69.3	0.0

Source: LSA Associates, Inc., October 2006.

Mitigation Measure NOISE-1: As discussed in the traffic section, several new facilities are proposed which could generate a significant number of trips and could have a significant impact on the traffic-related noise. At this time, these projects have not been defined sufficiently; therefore, they cannot be properly analyzed. Noise impact analyses shall be prepared as needed consistent with all applicable and appropriate laws, ordinances and regulations including all applicable provisions of CEQA.

Impact NOISE-2: The construction of recreational, interpretive and administrative facilities that would result from Plan implementation could potentially result in increased noise levels (Significance Criteria NOISE-a and NOISE-d).

Short-term noise impacts would be associated with the excavation, grading, and erection of buildings on the Unit during construction activities. Construction-related short-term noise levels would be higher than existing ambient noise levels in the project area today but would no longer occur once project construction is completed.

¹⁶ Traffic noise within 50 feet of the roadway centerline should be evaluated with site-specific information.

Two types of short-term noise impacts could occur during construction of the proposed project. First, construction crew commutes and the transport of construction equipment and materials to the project site would incrementally increase noise levels on site access roadways. As shown in Table 12.U, there will be a relatively high single-event noise exposure potential at a maximum level of 86 dBA L_{max} with trucks passing at 50 feet. However, the projected construction traffic will be minimal when compared to the existing traffic volumes on the affected streets, and its associated long-term noise level change will not be perceptible. Therefore, short-term construction-related worker commutes and equipment transport noise impacts would not be substantial.

The second type of short-term noise impact is related to noise generated during excavation, grading, and construction on site. Construction is performed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on site. Therefore, the noise levels vary as construction progresses. Despite the variety in the types and sizes of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table 12.U lists the maximum noise levels recommended for noise impact assessments for typical construction equipment based on a distance of 50 feet between the equipment and a noise receptor. Typical maximum noise levels range up to 91 dBA L_{max} at 50 feet during the noisiest construction phases. The site preparation phase, which includes excavation and grading of the site, tends to generate the highest noise levels because the noisiest construction equipment is earthmoving equipment. Earthmoving equipment includes excavating machinery such as backfillers, bulldozers, draglines, and front loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve one or two minutes of full-power operation followed by three or four minutes at lower-power settings.

Table 12.U: Typical Construction Equipment Noise Levels

Type of Equipment	Range of Maximum Sound Levels Measured (dBA at 50 Feet)	Suggested Maximum Sound Levels for Analysis (dBA at 50 Feet)
Pile Drivers, 12,000 to 18,000 ft-lb/blow	81-96	93
Rock Drills	83-99	96
Jack hammers	75-85	82
Pneumatic Tools	78-88	85
Pumps	74-84	80
Dozers	77-90	85
Scrapers	83-91	87
Haul Trucks	83-94	88
Cranes	79-86	82
Portable Generators	71-87	80
Rollers	75-82	80
Tractors	77-82	80
Front-End Loaders	77-90	86
Hydraulic Backhoe	81-90	86
Hydraulic Excavators	81-90	86
Graders	79-89	86
Air Compressors	76-89	86
Trucks	81-87	86

Source: Noise Control for Buildings and Manufacturing Plants, Bolt, Beranek & Newman, 1987.

Construction of the proposed project is expected to require the use of on-site scrapers, bulldozers, water trucks, and pickup trucks. Based on the information in Table 12.U, the maximum noise level generated by each scraper is assumed to be 87 dBA L_{max} at 50 feet from the scraper. Each bulldozer would also generate 85 dBA L_{max} at 50 feet. The maximum noise level generated by water trucks and pickup trucks is approximately 86 dBA L_{max} at 50 feet from these vehicles. Each doubling of the sound sources with equal strength increases the noise level by 3 dBA. Assuming that each piece of construction equipment operates at some distance from the other equipment, the worst-case combined noise level during this phase of construction would be 91 dBA L_{max} at a distance of 50 feet from the active construction area. The closest existing residences in the vicinity of any of the proposed construction areas are located approximately 500 feet away. These closest residences may be subject to short-term noise reaching 71 dBA L_{max} , generated by construction activities near the project boundary. Compliance with the hours specified in the Sacramento, El Dorado and Placer County's Municipal Codes regarding construction activities - only between the hours of six a.m. and eight p.m. on weekdays, seven a.m. and eight p.m. on Saturday and Sunday- will result in a less than significant noise impact on adjacent noise-sensitive land uses.

Mitigation Measure NOISE-2: Individual future development projects specified in the Plan would potentially result in relatively high noise levels and annoyance at the closest residences. Specific noise analyses will be required for these subsequent projects. In anticipation of potential noise impacts from construction, the following measures would reduce short-term construction related noise impacts:

- During all project site excavation and on-site grading, the project contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards;
- The project contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site; and
- The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction.

Impact NOISE-3: The operation of recreational, interpretive and administrative facilities could potentially result in increased noise levels from non-traffic sources (Significance Criteria NOISE-a and NOISE-d).

The operation of recreational equipment such as boats and personal watercraft on the lake could potentially result in relatively high noise levels and annoyance at the closest residences. These recreation-related short-term noise levels would be higher than existing ambient noise levels in the project area. Compliance with State code requires that boat engines do not exceed a sound level of 75 dBA L_{max} when measured at the shoreline. As the nearest residences to the shoreline are 500 feet away from the shore, and boats operating at speed (to generate this peak noise level) would be at least 50 feet from the shore (in compliance with the local park posted order of a 5mph speed limit within 200 feet of all shoreline at Folsom Lake), the noise attenuation due to the distance is 20 dBA, resulting in a noise level of 55 dBA L_{max} at the residence. Based on the typical sound level reductions of buildings identified in Protective Noise Levels, Condensed Version of EPA Levels Document (November 1978, EPA-550/9-79-100), standard building construction in Northern California would provide 24 dBA (the national average is 25 dBA) or more in noise reduction from exterior to interior with windows and doors closed. With windows and doors open, the exterior-to-interior noise reduction drops to 12 dBA (the national average is 15 dBA) or more. With windows closed, interior noise levels in the residences would be 35 dBA L_{max} or lower, with windows open, interior noise levels in the residences would be 43 dBA L_{max} or lower.

The exterior noise level of 55 dBA L_{max} is less than the Sacramento County daytime and nighttime standards, is less than the Community residential standards for El Dorado County for daytime and evening and equal to the nighttime standard (10 p.m. to 7 a.m.), and less than the residential noise standards for Placer County. Since it takes less than one minute for a speeding boat (when it generates the highest noise level) to pass a residence, these levels are also less than the City of Folsom's daytime and nighttime standards. The interior noise level of 43 dBA L_{max} is less than all area standards, as well. Therefore, complying with the state noise ordinances will reduce noise impacts to less than significant.

Mitigation Measure NOISE-3: Operation of pleasure motor boat engines would potentially result in relatively high noise levels and annoyance at the closest residences. Compliance with the following California State Administrative Codes shall reduce noise impacts to less than significant:

- California Administrative Code includes Code 4320-Peace and Quiet; and
- California Administrative Code 654.05, California Harbors and Navigation Code.

Implementation of the above listed guidelines and mitigation measures would reduce noise impacts to less than significant levels. The conditions included in the Significance Criteria (NOISE-a through NOISE-d) have been addressed.

4.4.13 Hazardous Materials

4.4.13.1 Affected Environment

4.4.13.1.1. *Setting*

NATURALLY OCCURRING ASBESTOS (NOA)

Naturally occurring asbestos fibers are considered hazardous because they may cause lung disease and are classified as a known human carcinogen by state, federal, and international agencies. NOA is present in the geologic formations of ultramafic and mafic volcanic rock within the Unit area. Soils that form over this bedrock, the bulk of which lies in a north-south swath through the Peninsula area of Folsom Lake and south of the south Fork of the American River, are also known to contain hazardous asbestos fibers. Abandoned or idle pit mines for talc and asbestos occur on the peninsula between the forks of the American River. When NOA bearing rock or soil is broken or crushed asbestos fibers may be released and may become airborne, causing a health hazard. Refer to the affected environment descriptions in Geology and Soils (Section 4.4.4) and Air Quality (Section 4.4.11) sections for additional information.

CHROMIUM

There are abandoned chromate mines on the Peninsula between the North and South Fork arms of Folsom Lake. No active mines exist there. For humans, the respiratory tract is the major target organ for chromium toxicity for acute (short-term) and chronic (long-term) inhalation exposures. There may be a small health risk if hexavalent chromium, the carcinogenic form of this metal, gets on the skin or if small amounts are accidentally swallowed. However the health risk from skin or oral exposure is considerably less than if the hexavalent chromium is inhaled.

The most toxic forms of chromium to aquatic life are trivalent and hexavalent chromium (EPA 1973). However, there is a great range of sensitivity to chromium between aquatic species and waters of different hardness. Chromium toxicity is less of a concern than methylmercury because chromium does not bioaccumulate in fish tissue as does mercury, and thereby is not likely to be a public health hazard (Rick Humphreys, SWRCB, Abandoned Mines Geologist, pers. comm.). There appears to be no data documenting high chromium levels in sediment, water, or fish from the vicinity of Folsom Lake drainages.

MERCURY

Mercury (Hg) can exist in many forms, most of which are stable and unavailable for biological uptake. However, inorganic mercury can be methylated by microbes and fungi into an organic form known as methylmercury (Baudo et al 1990; Domagalski et al 2000).

Fish take in some methylmercury through their gills, but most of their intake is through their food. Once consumed by fish, methylmercury is retained in the fatty tissue and bioaccumulates so that older and larger fish contain a higher concentration of methylmercury than younger or smaller fish. For humans, the most significant exposure pathway for mercury is ingestion of fish contaminated with methylmercury. Methylmercury mainly attacks the nervous system causing loss of sensation in the extremities, tiredness, and blurred vision (OEHHA 2002). A history of gold mining in the area, and the use of mercury to process gold-bearing ore appear to be the cause of relatively high levels of mercury in Lake Natoma fishes.

Testing of fish tissue for mercury content in Folsom Lake in the late 1980s indicated that fish occurring in association with known mining tailings throughout the lake are likely to have some degree of elevated mercury levels (Rick Humphreys, SWRCB, Abandoned Mines Geologist, pers. comm.). Old mine tailings occur at Morman Island, Rattlesnake Crossing, and Pilot Creek, and the sediments below the Salmon Falls Bridge are known to have elevated mercury levels. Because not all fish in Folsom Lake inhabit areas of old mine tailings, elevated mercury in sport fish does not appear to be widespread throughout the lake.

In 2002, researchers found that more than half of the 22 sampled fish, captured at the mouths of the once heavily mined Willow and Alder Creeks and from a small inlet on the east side of Natoma Lake, contained mercury in concentrations above the federal EPA's "screening level" (0.3 ppm), warranting further testing. Funded by Reclamation, the U.S. Geological Survey and University of California, Davis collected samples of 11 sport fish species during September and October 2002 and July 2003 from the mouth of Alder and Willow creeks, plus Mississippi Bar and Negro Bar. The fillets from the fish were tested for mercury and methylmercury content. These data were evaluated by the Office of Environmental Health Hazard Assessment (OEHHA), together with fish samples previously collected from the lower American River by the Toxic Substances Monitoring Program (TSMP) and the Sacramento River Watershed Program (SRWP), in an effort to determine whether there may be potential adverse health effects associated with consuming sport fish from these water bodies. Mercury concentrations in edible size fish of all species ranged from 0.02 ppm in a rainbow trout to 1.89 ppm in a large (750 mm) channel catfish (Klasing 2004). The OEHHA issued a news release on September 2, 2004 relaying the findings of the report and guidelines for consumption of bass, channel catfish and other fish species from Lake Natoma and the lower American River.

At present, there has been insufficient testing to determine if mercury contamination in Folsom Lake fishes still warrants concern. Plan implementation would not contribute to any

increases in methylmercury contamination in Lake Natoma, but would employ specific guidelines to support the investigation of methyl- mercury levels in the water (see guidelines below).

4.4.13.1.2 Regulatory Considerations

A myriad of laws and regulations at the federal, State, and local levels affect the management of hazardous materials. In California, the U.S. Environmental Protection Agency (U.S. EPA) has granted most enforcement authority over federal hazardous materials regulations to the California Environmental Protection Agency (Cal EPA).

Local agencies protect human health and the environment by ensuring that hazardous materials and hazardous waste are properly managed through permit and inspection processes, as well as public educational programs. Various hazardous materials programs and plans are accessible on the respective county websites:

- El Dorado County Environmental Health – <http://www.co.el-dorado.ca.us/EMD/solidwaste/hazardousmat.html>
- Sacramento County Environmental Management Department – <http://www.emd.saccounty.net>
- Placer County Environmental Health Hazardous Materials & Solid Waste Program – http://www.placer.ca.gov/hhs/env_health/hazmat.aspx

OFFICE OF ENVIRONMENTAL HEALTH HAZARD ASSESSMENT (OEHHA)

OEHHA is a state department that provides health-related assistance to the California Air Resources Board, air pollution control districts, local health officers and environmental health officers. While OEHHA does not promulgate environmental regulations directly, it is responsible for developing and providing risk managers in state and local government agencies with toxicological and medical information relevant to decisions involving public health.

STATE WATER RESOURCES CONTROL BOARD (SWRCB)

Water quality protection pursuant to the Clean Water Act of 1977 has been delegated from the EPA to the California Water Resources Control Board. The SWRCB and nine Regional Water Quality Control Boards (RWQCB) were established by the California Porter-Cologne Water Quality Control Act of 1969. The mission of the RWQCBs is to develop and enforce water quality objectives and implementation plans which will best protect the beneficial uses of the State's waters, recognizing local differences in climate, topography, geology and

hydrology. Refer to Section 4.4.7, Hydrology and Water Quality, for more information on water quality regulation considerations.

4.4.13.2 Significance Criteria and Evaluation Methodology

Potential significant impacts associated with hazardous materials have been evaluated using the following criteria (CEQA Guidelines Sections 15000-15387). A potentially significant environmental impact related to hazardous materials would result if implementation of the project would:

- HAZ-a** Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- HAZ-b** Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- HAZ-c** Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- HAZ-d** Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment;
- HAZ-e** For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area;
- HAZ-f** For a project located within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area;
- HAZ-g** Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or

HAZ-h Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

4.4.13.3 Environmental Evaluation and Mitigation Measures

The environmental consequences associated with implementing the project alternatives (Preferred Alternative, Alternative 3, and Alternative 4) and the No Project Alternative are summarized for Utilities in Table 13.A. For all alternatives, resource categories and management zones that have an evaluation of “High” effect or “Moderate” effect are more fully described below to present the level of effect. Where necessary, mitigation measures are present to reduce potential impacts.

4.4.13.3.1 Guidelines

The Plan contains specific guidelines (referenced below) to address issues related to hazards and water quality:

- Guideline GEO-1: Inventory and monitor geologic features within the unit as needed to protect and manage these resources.
- Guideline GEO-2: Limit human-caused impacts to important geologic features through design and location of visitor use facilities, educational materials and the use of barriers as appropriate.
- Guideline GEO-5: Site park facilities to avoid geologic hazards. Where existing facilities are already located in hazardous areas, examine the feasibility of relocating the facility or mitigating any risks to human life or property.
- Guideline SOILS-1: Minimize soil excavation, erosion, soil migration in the construction and operation of facilities. Minimize human-induced erosion by reducing concentrated run-off, avoiding over-watering with irrigation systems and limiting disturbance to fragile soils.

Table 13.A: HAZARDOUS MATERIALS IMPACTS EVALUATION*Park-Wide Goals and Guidelines*

Resource	No Project	Preferred Alternative	Alternative 3	Alternative 4
Invasive Exotic Plant Species	Low	Low	Low	Low
Vegetation Management	Low	Low	Low	Low
Cultural Resource Management	No Impact	Low	Low	Low
Wildlife Management	No Impact	No Impact	No Impact	No Impact
Watershed/Water Quality Management	No Impact	No Impact	No Impact	No Impact
Visual Resources	No Impact	No Impact	No Impact	No Impact
Unitwide Interpretation	Low	Low	Low	Low
Visitor Services			see below	
Visitor Capacity			see below	
Park Operations			see below	

Species Area Goals and Guidelines

Management Zone	No Project	Preferred Alternative	Alternative 3	Alternative 4
Nimbus Dam	No Impact	No Impact	No Impact	No Impact
Nimbus Flat/Shoals	No Impact	Low	Low	Low
Lake Overlook	Low	Low	Low	Low
Mississippi Bar	Low	Low	Low	Low
Negro Bar	No Impact	Low	Low	Low
Natoma Canyon	No Impact	No Impact	No Impact	No Impact
Folsom Powerhouse	Low	Low	Low	Low
Natoma Shore North	No Impact	No Impact	Low	No Impact
Natoma Shore South	Low	Low	Low	No Impact
Lower Lake Natoma (AQ)	No Impact	No Impact	No Impact	No Impact
Upper Lake Natoma (AQ)	No Impact	No Impact	No Impact	No Impact
Folsom Dam	No Impact	Low	Low	Low
Beals Point	No Impact	Low	Low	Low
Mooney Ridge	Low	Low	Low	Low
Granite Bay South	No Impact	Low	Low	Low
Granite Bay North	High	Low	Moderate	Low
Placer Shore	No Impact	Low	Low	Low
Rattlesnake Bar	Low	Low	Low	Low
North Fork Shore	Low	Low	Low	Low
Anderson Island	No Impact	No Impact	No Impact	No Impact
Peninsula	Moderate	Moderate	Moderate	Moderate
Darrington	No Impact	Low	Low	Low
Skunk Hollow/Salmon Falls	Low	Moderate	Moderate	Moderate
El Dorado Shore	High	Low	High	Low
Brown's Ravine	Low	Low	Low	Low
Mormon Island Cove	Low	Low	Low	Low
Mormon Island Preserve	Low	Low	Low	Low
Folsom Point	Moderate	High	High	High
Folsom Lake (AQ)	No Impact	No Impact	No Impact	No Impact
Middle North Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Upper North Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Middle South Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Upper South Fork (AQ)	No Impact	No Impact	No Impact	No Impact

- Guideline WATER-2: Ensuring that park operations, facilities, and uses avoid or minimize impacts to water quality.
- Guideline WATER-3: Developing a central database for timely input of water quality results from all sampling programs.
- Guideline WATER-4: Expanding regular water quality sampling by adding monitoring stations beyond the three Reclamation stations that are currently monitored in the park. In addition to the current monitoring parameters, consider water quality factors such as possible occurrence of anoxic events in backwater areas, and contamination from adjacent land uses and waterfowl in order to understand the water quality characteristics of Folsom Lake and Lake Natoma.
- Guideline WATER-6: Designating State Parks and Reclamation personnel to be contacted in the event of a hazardous materials release within the park's watersheds. Coordinate with the local Certified Unified Program Agency, Administering Agency, or Participation Agency (offices of emergency services or environmental health departments of the adjacent counties) to ensure that State Parks contacts be added to the notification list.
- Guideline WATER-7: Continuing to support the investigation of mercury and methylmercury levels in water, sediment, fish and other biota conducted by the U.S. Geological Survey and the University of California, Davis. Continue to coordinate with Sacramento County Office of Environmental Health Hazard Assessment (OEHHA) and Cal EPA regarding appropriate advisories for Lake Natoma.

4.4.13.3.2 Impacts

Impact HAZ-1: Implementation of the Plan would involve the construction of additional facilities and site improvements that could generate increased emissions of air pollutants including airborne NOA particulates resulting from clearing and grading activities (Significance Criterion HAZ-a and HAZ-b).

Construction activities associated with proposed development such as site preparation, surface grading, and new construction could create soil disturbances and increase erosion.

Clearing and grading activities may disturb asbestos bearing soil and rock material and release toxic asbestos fibers into the air. Therefore, precautions should be taken to either minimize participation in the activity or to minimize dust disturbance for the activity, or both.

Mitigation Measure HAZ-1: In order to offset any potential risks of exposure to, or if NOA is identified during construction activities, the following standards from Section 93105 of the ATCM For Construction, Grading, Quarrying, and Surface Mining Operations, shall be followed as precaution. (Refer to Section 4.4.4, Geology and Soils, and Section 4.4.11, Air Quality, for additional information.)

The potential for encountering NOA during project construction within the Unit would be mitigated to a less-than-significant impact by the implementation of Mitigation Measure HAZ-1, per California's dust abatement guidelines for asbestos. Future projects resulting from Plan implementation shall comply with the fugitive dust measures established by the three air district asbestos as applicable. If necessary, Phase I and/or Phase II Environmental Site Assessments shall be conducted to further determine impacts and prescribe mitigation measures for airborne asbestos.

Impact HAZ-2: Implementation of the Plan could involve the construction of additional facilities and site improvements in the vicinity of abandoned chromium mines resulting in potential water quality issues or the exposure of construction workers to particulate matter containing hexavalent chromium (Significance Criteria HAZ-a and HAZ-b).

Mitigation Measure HAZ-2: Proposed site improvements or construction activities in areas of the Unit that may contain chromate deposits shall undergo a Phase I and/or Phase II Environmental Site Assessment conducted by a qualified environmental professional to ascertain any potential impacts to sensitive receptors and water quality. Any activity that involves any on-site movement of a hazardous material is a process subject to California Code of Regulations. Should any hazardous substances or other health hazards be identified, appropriate warning and protective methods would be developed and implemented.

Specific area impacts related to hazardous materials are described below.

SPECIFIC AREA GOALS AND GUIDELINES

Granite Bay North

No Project: High Impact

The addition of 250 parking spaces, paved roads, and paved access to just below the

high water mark at Oak Point/Dotons Point could include substantial grading activities that could result in soil erosion. Granite Bay North is moderately likely to contain NOA and local faults or shearing could expose bedrock baring NOA. Implementation of Mitigation Measure HAZ-1, described above, would reduce potential impacts to a level below significance.

Alternative 3: Moderate Impact

The addition of a formal beach at Oak Point with parking for approximately 100 vehicles and the expansion of the equestrian staging area could include substantial grading activities that could result in soil erosion. Granite Bay North is moderately likely to contain NOA and local faults or shearing could expose bedrock baring NOA. Implementation of the guidelines and Mitigation Measure HAZ-1, described above, would reduce potential impacts to a level below significance.

Peninsula

No Project: Moderate Impact

The additional development of shower facilities, RV sanitary station, 200 picnic sites and beach, loop trail, trail staging area and trail camp could include substantial grading activities that could result in soil erosion. Abandoned chromium mines occur on Flagstaff Mountain on the Peninsula of Folsom Lake and there could be other deposits in the region. Grading activities in the proximity to these deposits have the potential to adversely impact sensitive receptors and water quality. Implementation of Mitigation Measure HAZ-2, described above, would reduce potential impacts to a level below significance.

Preferred Alternative and Alternative 4: Moderate Impact

The additional development of 50 campsites and trailhead facilities could include substantial grading activities that could result in soil erosion. Abandoned chromium mines occur on Flagstaff Mountain on the Peninsula of Folsom Lake and there could be other deposits in the region. Grading activities in the proximity to these deposits have the potential to adversely impact sensitive receptors and water quality. Implementation of the guidelines and Mitigation Measure HAZ-2, described above, would reduce potential impacts to a level below significance.

Alternative 3: Moderate Impact

The additional development of 100-200 campsites and marina could include substantial grading activities that could result in soil erosion. Abandoned chromium mines occur on Flagstaff Mountain on the Peninsula of Folsom Lake and there could

be other deposits in the region. Grading activities in the proximity to these deposits have the potential to adversely impact sensitive receptors and water quality. Implementation of the guidelines and Mitigation Measure HAZ-2, described above, would reduce potential impacts to a level below significance.

Skunk Hollow/Salmon Falls

Preferred Alternative, Alternative 3, Alternative 4: Moderate Impact

The creation of a new trail corridor from Skunk Hollow to a potential BLM trail along the shoreline could promote soil erosion. On the north side of the South Fork of the American River, Skunk Hollow/Salmon Falls is within the quarter mile buffer for more likely to contain NOA or fault line. On the south side of the river, Skunk Hollow/Salmon Falls is more likely to contain NOA (El Dorado County 2005). Implementation of the guidelines and Mitigation Measure HAZ-1, described above, would reduce potential impacts to a level below significance.

El Dorado Shore

No Project Alternative: High Impact

The development of 80 campsites, RV sanitary station, boat dock, boat camping, swim beach with restrooms and trail staging area in the vicinity of New York Creek/Monte Vista could include substantial grading activities that could result in soil erosion. Parts of El Dorado Shore are more likely to contain NOA or are within the quarter mile buffer for more likely to contain NOA or fault line (El Dorado County 2005). Implementation of Mitigation Measure HAZ-1, described above, would reduce potential impacts to a level below significance.

Alternative 3: High Impact

The development of paved formalized parking areas at Sweetwater Creek, a major trailhead and staging facility at Falcon Crest and day use facilities in the vicinity of the former Monte Vista campground could include substantial grading activities that could result in soil erosion. Parts of El Dorado Shore are more likely to contain NOA or are within the quarter mile buffer for more likely to contain NOA or fault line (El Dorado County 2005). Implementation of the guidelines and Mitigation Measure HAZ-1, described above, would reduce potential impacts to a level below significance.

Folsom Point

No Project: Moderate Impact

The additional development of a visitor/orientation center that may include a

restaurant at Observation Point could include substantial grading activities that could result in soil erosion. Folsom Point is within the Copper Hill Volcanics that are more likely to contain NOA (CGS 2006). Implementation of Mitigation Measure HAZ-1, described above, would reduce potential impacts to a level below significance.

Preferred Alternative, Alternative 4: High Impact

Implementation of these alternatives would result in the additional development of a multi-use facility at Folsom Point as well as reconfiguration of the picnic area and the boat ramp, expansion of the parking area, and provision of restrooms and drinking water. It would also entail development of a trailhead at Dike 7, a Class I bike path to Mormon Island Cove, and a Class I bike path across the canyon on the new Folsom Dam Road. Development of these facilities could include substantial grading activities that could result in soil erosion. Folsom Point is within the Copper Hill Volcanics that are more likely to contain NOA (CGS 2006). Implementation of the guidelines and Mitigation Measure HAZ-1, described above, would reduce potential impacts to a level below significance.

Alternative 3: High Impact

Implementation of Alternative 3 would result in the additional development of a multi-use facility at Folsom Point as well as expansion of boat ramp parking and development of a formal beach area. Like the Preferred Alternative and Alternative 4, it would also entail development of a trailhead at Dike 7, a Class I bike path to Mormon Island Cove, and a Class I bike path across the canyon on the new Folsom Dam Road. Development of these facilities could include substantial grading activities that could result in soil erosion. Folsom Point is within the Copper Hill Volcanics that are more likely to contain NOA (CGS, 2006). Implementation of the guidelines and Mitigation Measure HAZ-1, described above, would reduce potential impacts to a level below significance.

Implementation of the above listed mitigation measures would reduce impacts related to hazardous materials to less than significant levels. Consequently, the conditions included in the Significance Criteria (HAZ-a through HAZ-h) have been addressed.

4.4.14 Utilities and Service Systems

4.4.14.1 Affected Environment

The utility infrastructure of the Folsom Lake State Recreation Area (the Unit) consists of both State Parks-owned systems that provide water, sewer, electricity and telephone service to Unit facilities, and utility corridors and easements owned by outside companies and agencies. Levels and types of service vary for each recreation area. Most areas do not have significant utility constraints. Many are currently receiving service from public utilities or can easily be connected to public utilities for water, sewer, telephone and power. Rural areas on the north side of Folsom Lake have limited potential for leach fields due to unsuitable soil types. This condition mostly affects Rattlesnake Bar, parts of the Peninsula and remote parts of Granite Bay. Some of the remote, hilly sites, like Salmon Falls, Old Salmon Falls, and Skunk Hollow also have limited potential for leach fields due to limited available land area. Water supply and sewer system issues exist near the Aquatic Center on Lake Natoma. The water supply and sewer issues would need to be addressed for any expansion plans. The existing Sacramento County sewer system is at or near maximum capacity. The water supply is at the end of a distribution network and there are concerns about pressure.

Several companies and agencies own utility lines that pass through the Unit. State Parks and Reclamation have granted easements to utility owners that guarantee them permanent access to pipelines or transmission lines for maintenance and repair purposes. Typically, State Parks and Reclamation are not responsible for maintenance of these easements. Development within these easements is prohibited; however, new roads, trails and utilities can be constructed across easements provided permission has been granted. Each utility owner adopts its own policy for vegetation removal, tree trimming, and easement maintenance. These policies are not always consistent with those of State Parks. Furthermore, the expansion plans of two utility owners – the San Juan Water District and the El Dorado Irrigation District – may affect future Unit land use. Entities with major utility easements include PG&E, City of Roseville, San Juan Water District, Western Area Power Administration, Sacramento Municipal Utility District, El Dorado Irrigation District and the City of Folsom.

Public safety in the Unit is managed by California State Park Rangers. There are between 17 and 25 permanent full-time Park Rangers within the Unit that perform professional and technical duties involving operation, resource protection and management, patrol, safety and law enforcement, and other Unit management activities. All California State Park Rangers are trained and designated as sworn State park peace officers whose authority extends statewide, both on and off duty.

Fire prevention and protection services within the Unit are administered by the Reclamation for federal lands outside the area of responsibility of local fire agencies, and the California Department of Fire and Forestry (CDF) for State lands. A contractual agreement between Reclamation and CDF grants Reclamation responsibility for fire prevention on federal lands within the Unit. State Parks owns a small pumper truck that is stationed at the Peninsula for use in wildfire emergencies.

4.4.14.2 Significance Criteria and Evaluation Methodology

Potential significant impacts associated with public utilities have been evaluated using the following criteria (CEQA Guidelines Sections 15000-15387). The adoption and implementation of the project would have a significant effect on utilities and public service systems if it would:

- UTIL-a Result in an increased demand for police protection and fire emergency services exceeding existing or planned staffing levels;
- UTIL-b Result in response times to calls for police protection and fire and emergency services exceeding existing levels or established performance standards;
- UTIL-c Substantially increase demand for neighborhoods parks, regional parks, or recreational facilities that would accelerate their physical deterioration, or decrease the quality of the facilities or users' experience; or
- UTIL-d Result in the removal of a neighborhood park or open space areas.
- UTIL-e Exceed wastewater treatment requirements of the Regional Water Quality Control Board (RWQCB);
- UTIL-f Require the extension or substantial reconstruction of major water and wastewater lines to serve new development;
- UTIL-g Create substantial new demand for water beyond the existing or planned local water supply, requiring additional water storage capacity;
- UTIL-h Generate wastewater flows that would exceed the existing or planned wastewater treatment, storage and disposal capacity of the local wastewater treatment plant;

UTIL-i Result in a substantial decrease in remaining available space at a landfill; or

UTIL-j Interfere with federal, State, and local statutes and regulations related to solid waste.

4.4.14.3 Environmental Evaluation and Mitigation Measures

The environmental consequences associated with implementing the project alternatives (Preferred Alternative, Alternative 3, and Alternative 4) and the No Project Alternative are summarized for Utilities in Table 14.A. For all alternatives, resource categories and management zones that have an evaluation of “High” effect or “Moderate” effect are more fully described below to present the level of effect. Where necessary, mitigation measures are present to reduce potential impacts.

4.4.14.3.1 Guidelines

The Plan contains specific guidelines (referenced below) to address issues related to utilities and service systems:

Guideline SUSTAIN-2: *Safeguarding Water:* Conserve water and protect water quality by considering the following guidelines when implementing the Plan:

- Use municipal sewer systems instead of on-site septic sewer systems, to the degree practical.
- Use low-flow water fixtures within buildings.

Guideline SUSTAIN-3: *Energy and Atmosphere:* Design park improvements to enhance energy efficiency and expand the use of renewable resources. See Section 4.4.2.5, Energy Conservation, for specific guidelines.

Table 14.A: UTILITIES AND SERVICE SYSTEMS IMPACTS EVALUATION

<i>Park-Wide Goals and Guidelines</i>				
Resource	No Project	Preferred Alternative	Alternative 3	Alternative 4
Invasive Exotic Plant Species	No Impact	No Impact	No Impact	No Impact
Vegetation Management	No Impact	No Impact	No Impact	No Impact
Cultural Resource Management	No Impact	No Impact	No Impact	No Impact
Wildlife Management	No Impact	No Impact	No Impact	No Impact
Watershed/Water Quality Management	No Impact	No Impact	No Impact	No Impact
Visual Resources	No Impact	No Impact	No Impact	No Impact
Unitwide Interpretation	No Impact	No Impact	No Impact	No Impact
Visitor Services			see below	
Visitor Capacity			see below	
Park Operations			see below	
<i>Specific Area Goals and Guidelines</i>				
Management Zone	No Project	Preferred Alternative	Alternative 3	Alternative 4
Nimbus Dam	No Impact	No Impact	No Impact	No Impact
Nimbus Flat/Shoals	Low	Low	Low	Low
Lake Overlook	Low	Moderate	Moderate	Moderate
Mississippi Bar	Low	Low	Low	Low
Negro Bar	Low	Low	Low	Low
Natoma Canyon	No Impact	No Impact	No Impact	No Impact
Folsom Powerhouse	Low	Low	Low	Low
Natoma Shore North	No Impact	No Impact	No Impact	No Impact
Natoma Shore South	Low	Low	Low	Low
Lower Lake Natoma (AQ)	No Impact	No Impact	No Impact	No Impact
Upper Lake Natoma (AQ)	No Impact	No Impact	No Impact	No Impact
Folsom Dam	Low	Low	Low	Low
Beals Point	Low	Low	Low	Low
Mooney Ridge	Low	No Impact	No Impact	No Impact
Granite Bay South	Low	Low	Low	Low
Granite Bay North	Low	Low	Low	Low
Placer Shore	No Impact	No Impact	No Impact	No Impact
Rattlesnake Bar	Low	Low	Low	Low
North Fork Shore	No Impact	No Impact	No Impact	No Impact
Anderson Island	No Impact	No Impact	No Impact	No Impact
Peninsula	Low	Low	Low	Low
Darrington	No Impact	No Impact	No Impact	No Impact
Skunk Hollow/Salmon Falls	No Impact	No Impact	No Impact	No Impact
El Dorado Shore	No Impact	No Impact	No Impact	No Impact
Brown's Ravine	Low	Low	Low	Low
Mormon Island Cove	Low	Low	Low	Low
Mormon Island Preserve	No Impact	No Impact	No Impact	No Impact
Folsom Point	Low	Low	Low	Low
Folsom Lake (AQ)	No Impact	No Impact	No Impact	No Impact
Middle North Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Upper North Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Middle South Fork (AQ)	No Impact	No Impact	No Impact	No Impact
Upper South Fork (AQ)	No Impact	No Impact	No Impact	No Impact

4.4.14.3.2 *Impacts*

Impact UTIL-1: Implementation of the Plan would allow the development of additional facilities and site improvements that could generate increased demand for additional water, wastewater, electricity, gas, telephone, and solid waste disposal services (Significance Criteria UTIL-f through UTIL-i).

The majority of the existing water supply, wastewater, electricity and gas, and telephone services within the Unit are provided by public utility systems. In recreation sites where such services are not provided, but are in close proximity to such infrastructure, services could be extended with relative ease. In more remote areas of the park where surrounding development is without urban services, park facilities are also without such services. In these areas, no new services would be required. According to various utility representatives, the existing utility systems serving most recreation areas in the park have the capacity to accommodate additional park facilities. However, proposed development in some specific areas could adversely affect utilities.

Mitigation Measure UTIL-1a: Prior to implementation, site specific development projects and management plans, as identified in the Plan, shall be submitted to and reviewed by the applicable Public Works Department in Sacramento County, Placer County, El Dorado County, and/or the City of Folsom to determine if adequate water pressure can be provided. If adequate water pressure cannot be provided, project location and design components shall be adapted as necessary.

Mitigation Measure UTIL-1b: Prior to implementation, projected visitation and facility size information for site specific development projects shall be submitted to and reviewed by the applicable Public Works Department in Sacramento County, Placer County, El Dorado County, and/or the City of Folsom to determine if sufficient public sewer service is available. If adequate public sewer service is not available, project location and design components shall be adapted as necessary.

Specific impacts related to utilities are described below.

SPECIFIC AREA GOALS AND GUIDELINES

Lake Overlook

Preferred Alternative and Alternative 4: Moderate Impact

Implementation of these alternatives would result in the additional development of day-use facilities, including picnic area with shade armadas and toilets. Construction of these facilities could result in increased demand for sewer services. Sacramento

County's sewer system is nearing maximum capacity. However, the County has embarked on an interceptor line upgrade, which includes construction of the Bradshaw/Folsom Interceptor, to service the Folsom area and should have sufficient sewer capacity by 2007 to service ultimate planned growth in the urban service area (SRCSD 2000). Portions of this interceptor line have already been completed. Implementation of Mitigation Measure UTIL-1b, described above, would ensure sufficient sewer capacity would be available, thereby reducing potential impacts to a level below significance.

Alternative 3: Moderate Impact

Construction of a small amphitheater with flush toilets and drinking water, associated with implementation of Alternative 3, has the potential to create increased demand for public water and sewer services. As this management zone lies at the end of the County of Sacramento's water supply system, this area could have problems maintaining adequate water pressure for any new/expanded facilities. Implementation of Mitigation Measure UTIL-1a, described above, would reduce potential impacts to a level below significance.

In addition, the County's sewer system is nearing maximum capacity. To address this concern, the County has embarked on an interceptor line upgrade, which includes construction of the Bradshaw/Folsom Interceptor, to service the Folsom area and should have sufficient sewer capacity by 2007 to service ultimate planned growth in the urban service area (SRCSD 2000). Portions of this interceptor line have already been completed. Implementation of Mitigation Measure UTIL-1b, described above, would ensure sufficient sewer capacity would be available, thereby reducing potential impacts to a level below significance.

Implementation of the above listed mitigation measure would reduce environmental impacts associated with utilities to less than significant levels. Consequently, the conditions included in the Significance Criteria (UTIL-a through UTIL-i) have been addressed.