3.4 Climate Change and Greenhouse Gas Emissions

3.4.1 Affected Environment

This section discusses global climate change and existing greenhouse gas (GHG) emission sources; summarizes applicable Federal, State, and local regulations; and analyzes potential construction-related and long-term operational GHG impacts resulting from development of the JOC Relocation Project.

Emissions of GHGs have the potential to adversely affect the environment because such emissions contribute, on a cumulative basis, to global climate change. Global climate change also has the potential to result in sea level rise (resulting in flooding of low-lying areas), to affect rainfall and snowfall (leading to changes in water supply and runoff), to affect temperatures and habitats (affecting biological and agricultural resources), and to result in many other adverse effects.

Legislation, regulations, and executive orders on the subject of climate change have established a Federal and statewide context and process for developing an enforceable cap on GHG emissions. Given the nature of environmental consequences from GHGs and global climate change, NEPA and CEQA require that lead agencies evaluate the cumulative impacts of GHGs, even relatively small additions, on a global basis. Small contributions to this cumulative impact of global climate change (from which significant effects are occurring and are expected to worsen over time) may be potentially significant.

Environmental Setting

Causes of Climate Change Global warming is the name given to the increase in the average temperature of Earth's near-surface air and oceans since the mid-20th century and its projected continuation. Warming of the climate system is now considered to by unequivocal (IPCC 2007) with global surface temperature increasing approximately 1.33 degrees Fahrenheit (°F) over the last 100 years. Continued warming is projected to increase the global average temperature between 2°F and 11°F over the next 100 years.

The causes of this warming have been identified as both natural processes and as the result of human actions. The Intergovernmental Panel on Climate Change (IPCC) concludes that variations in natural phenomena, such as solar radiation and volcanoes, produced most of the warming from pre-industrial times to 1950 and had a small cooling effect afterward. However, after 1950, increasing GHG concentrations resulting from human activity, such as fossil fuel burning and deforestation, have been responsible for most of the observed temperature increase. These basic conclusions have been endorsed by more than 45 scientific societies and academies of science, including all of the national academies of science of the major industrialized countries. Since 2007, no scientific body of national or international standing has maintained a dissenting opinion.

Increases in GHG concentrations in the Earth's atmosphere are thought to be the main cause of human induced climate change. GHGs naturally trap heat by impeding the exit

of solar radiation that has hit the Earth and is reflected back into space. Some GHGs occur naturally and are necessary for keeping the Earth's surface inhabitable. However, increases in the concentrations of these gases in the atmosphere during the last hundred years have decreased the amount of solar radiation that is reflected back into space, intensifying the natural greenhouse effect and resulting in the increase of global average temperature.

The principal GHGs are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), perfluorocarbons (PFC), hydrofluorocarbons (HFC), and water vapor. Each of the principal GHGs has a long atmospheric lifetime (1 year to several thousand years). In addition, the potential heat trapping ability of each of these gases vary significantly from one another. CH_4 is 23 times as potent as CO_2, while SF_6 is 22,200 times more potent than CO_2. Conventionally, GHGs have been reported as CO_2 equivalents (CO_2e). CO_2e takes into account the relative potency of non-CO_2 GHGs and converts their quantities to an equivalent amount of CO_2 so that all emissions can be reported as a single quantity.

The primary man-made processes that release these gases include the following: burning of fossil fuels for transportation, heating, and electricity generation; agricultural practices that release CH_4, such as livestock grazing and crop residue decomposition; and industrial processes that release smaller amounts of high global warming potential gases such as SF_6, PFCs, and HFCs. Deforestation and land cover conversion have also been identified as contributing to global warming by reducing the Earth's capacity to remove CO_2 from the air and altering the Earth's albedo (or surface reflectance) allowing more solar radiation to be absorbed.

Trends of Climate Change The rate of increase in global average surface temperature over the last hundred years has not been consistent; the last three decades have warmed at a much faster rate—on average 0.32°F per decade. Eleven of the 12 years from 1995 to 2006, rank among the 12 warmest years in the instrumental record of global average surface temperature (going back to 1850) (IPCC 2007).

Impacts of Climate Change During the same period over which this increased global warming has occurred, many other changes have occurred in other natural systems. Sea levels have risen on average1.8 millimeters per year; precipitation patterns throughout the world have shifted, with some areas becoming wetter and other drier; tropical cyclone activity in the North Atlantic has increased; peak runoff timing of many glacial and snow fed rivers has shifted earlier; and numerous other conditions have been observed. Though it is difficult to prove a definitive cause and effect relationship between global warming and other observed changes to natural systems, confidence is high in the scientific community that these changes are a direct result of increased global temperatures (IPCC 2007).

California Climate Trends and Associated Impacts Maximum (daytime) and minimum (nighttime) temperatures are increasing almost everywhere in California but at different rates. The annual minimum temperature averaged over all of California has increased 0.33°F per decade during the period 1920 to 2003, while the average annual

maximum temperature has increased 0.1°F per decade (Moser et al. 2009). Based on the results of a variety of region-specific climate change impact studies, some increase in annual average temperatures is reasonably foreseeable in California during the next 100 years. Although a temperature increase is expected, the amount and timing of the increase are uncertain. Predictions put an increase in the range of 3.6 to 9°F over the next 50–100 years (IPCC 2007; Kim et al. 2002; Snyder et al. 2002).

Regarding California's water resources, the most significant impacts of global warming have been changes to the water cycle and sea level rise. Over the past century, the precipitation mix between snow and rain has shifted in favor of more rainfall and less snow (Mote et al. 2005; Knowles et al. 2006), and snowpack in the Sierra Nevada is melting earlier in the spring (Kapnick and Hall 2009). The average early spring snowpack in the Sierra Nevada has decreased by about 10% during the last century, a loss of 1.5 million acre-feet of snowpack storage (DWR 2008). These changes have significant implications for water supply, flooding, aquatic ecosystems, energy generation, and recreation throughout the state. During the same period, sea levels along California's coast rose 7 inches (DWR 2008). Sea level rise associated with global warming will continue to threaten coastal lands and infrastructure, increase flooding at the mouths of rivers, place additional stress on levees in the Sacramento–San Joaquin Delta (Delta), and will intensify the difficulty of managing the Delta as the heart of the State's water supply system.

Historical trends and predictions of future climate change effects in the above topic areas most relevant to the project are discussed below.

Precipitation Climate change can affect precipitation by changing overall amount of precipitation, type of precipitation (rain versus snow), and timing and intensity of precipitation events. Changes to these factors propagate through the hydrologic system in California and have the potential to affect snowpack, runoff, water supply, and flood control.

Former State Climatologist James Goodridge compiled an extensive collection of longer-term precipitation records from throughout California. These data sets were used to evaluate whether there has been a changing trend in precipitation in the State over the past century (DWR 2006). Long-term runoff records in selected California watersheds were also examined. Based on a linear regression of the data, the long-term historical trend for statewide average annual precipitation appears to be relatively flat (no increase or decrease) over the entire record. However, it appears that there might be an upward trend in precipitation toward the latter portion of the record.

When these same precipitation data are sorted into three regions—northern, central, and southern California—trends show that precipitation in the northern portion of the state appears to have increased slightly from 1890 to 2002, and precipitation in the central and southern portions of the state show slightly decreasing trends. All changes were in the range of 1–3 inches annually (DWR 2006). Although existing data indicate some level of change in precipitation trends in California, more analysis is likely needed to determine

whether changes in California's regional annual precipitation totals have occurred as the result of climate change or other factors (DWR 2006).

Snowpack An increase in the global average temperature is expected to result in a decreased volume of precipitation falling as snow in California and an overall reduction in snowpack in the Sierra Nevada. Snowpack in the Sierra Nevada provides both water supply (runoff) and storage (within the snowpack before melting) and is a major source of supply for the state. According to the California Energy Commission (CEC) (2006a), the snowpack portion of the water supply could potentially decline by 30–90% by the end of the 21st century. A study cited in a report by DWR projects that approximately 50% of the statewide snowpack will be lost by the end of the century (Knowles and Cayan 2002).

California's annual snowpack, on average, has the greatest accumulations from November though the end of March. The snowpack typically melts from April through July. California's reservoir managers (including State Water Project and Central Valley Project facilities) use snowmelt to help fill reservoirs once the threat of large winter and early spring storms and related flooding risks have passed.

An analysis conducted by DWR (2006:2-30) of the effect of rising temperatures on snowpack shows that a 3°C (5.4°F) rise in average annual temperature would likely cause snowlines to rise approximately 1,500 feet. This would result in an annual loss of approximately 5 million acre-feet of water storage in the snowpack.

Runoff Runoff is directly affected by changes in precipitation and snowpack. An increase in precipitation falling as rain rather than snow earlier in the year could lead to increased potential for floods because water that would normally be held in the Sierra Nevada snowpack until spring could flow into the Central Valley concurrently with the rain from winter storm events. This scenario would place more pressure on California's levee/flood control system (DWR 2006). Changes in both the amount of runoff and the seasonality of the hydrologic cycle also have the potential to greatly affect the heavily managed water systems of the western United States. Delta hydrology is highly dependent on the interaction between Sierra Nevada snowpack, runoff, and management of reservoirs.

Sea Level Rise Another of the major areas of concern related to global climate change is sea level rise. Worldwide average sea level appears to have risen about 0.4 to 0.7 foot over the past century based on data collected from tide gauges around the globe, coupled with satellite measurements taken over approximately the last 15 years (IPCC 2007). Various gauge stations along the California coast show an increase similar to the global trends. Data specific to the San Francisco tide gauge near the Golden Gate Bridge, using 19-year data sets, show that the mean tide level has increased by approximately 0.5 foot over the past 100 years. Rising average sea level over the past century has been attributed primarily to warming of the world's oceans and the related thermal expansion of ocean waters, and the addition of water to the world's oceans from the melting of land-based polar ice (IPCC 2007).

A consistent rise in sea level has been recorded worldwide over the last 100 years. According to the IPCC, sea level rise is expected to continue and accelerate, and is projected to be up to 23 inches (4.6 feet) by the year 2099 (IPCC 2007). Other climate models estimate an even greater increase in sea level rise of 55 inches by the year 2100 (DWR 2008). Although these projections are on a global scale, the rate of relative sea level rise experienced at many locations along California's coast correlates well with the worldwide average rate of rise observed over the past century. Therefore, it is reasonable to expect that changes in worldwide average sea level will also be experienced along California's coast through this century (DWR 2006:2-44). However, the amount and timing of the expected sea level rise that will be experienced along California's coast is uncertain. The governor-appointed Delta Vision Blue Ribbon Task Force has recommended that the State plan for a scenario of 16 inches of sea level rise by 2050, and 55 inches by 2100 (California Natural Resources Agency 2009). Sea level rise affecting California could result in increased coastal flooding, saltwater intrusion into the Delta, and disruption of wetlands (CEC 2006a). As discussed below, saltwater intrusion is of particular concern in the Delta, where pumps delivering potable water could be threatened. Some low-lying populated areas throughout the Delta inundated by sea level rise could experience population displacement and economic disruption.

Local Climate The project area is located in a climatic zone characterized as Mediterranean (abbreviated Csa) on the Köppen climate classification system. The Köppen system's classifications are based primarily on annual and monthly averages of temperature and precipitation.

The Sacramento Valley Air Basin (SVAB) is relatively flat and bordered by mountains to the east, west, and north. Air flows into the SVAB through the Carquinez Strait, the only breach in the western mountain barrier, and moves across the Delta, bringing with it pollutants from the heavily populated San Francisco Bay Area. The climate is characterized by hot, dry summers and cool, rainy winters.

Periods of dense and persistent low-level fog that are most prevalent between storms are characteristic of SVAB winter weather. The average winter temperature is a moderate 49°F. Most precipitation in the area results from air masses that move in from the Pacific Ocean from the west or northwest during the winter rainy season (November to April). During summer, daily temperatures range from 50°F to more than 100°F.

Sources of Greenhouse Gas Emissions Emissions of GHGs contributing to global climate change are attributable in large part to human activities. For purposes of accounting for and regulating GHG emissions, sources of GHG emissions are grouped into emission sectors. The California Air Resources Board (ARB) identifies the following main GHG emissions sectors that account for most anthropogenic GHG emissions generated within California:

- *Transportation:* On-road motor vehicles, recreational vehicles, aviation, ships, and rail
- *Electricity:* Use and production of electrical energy

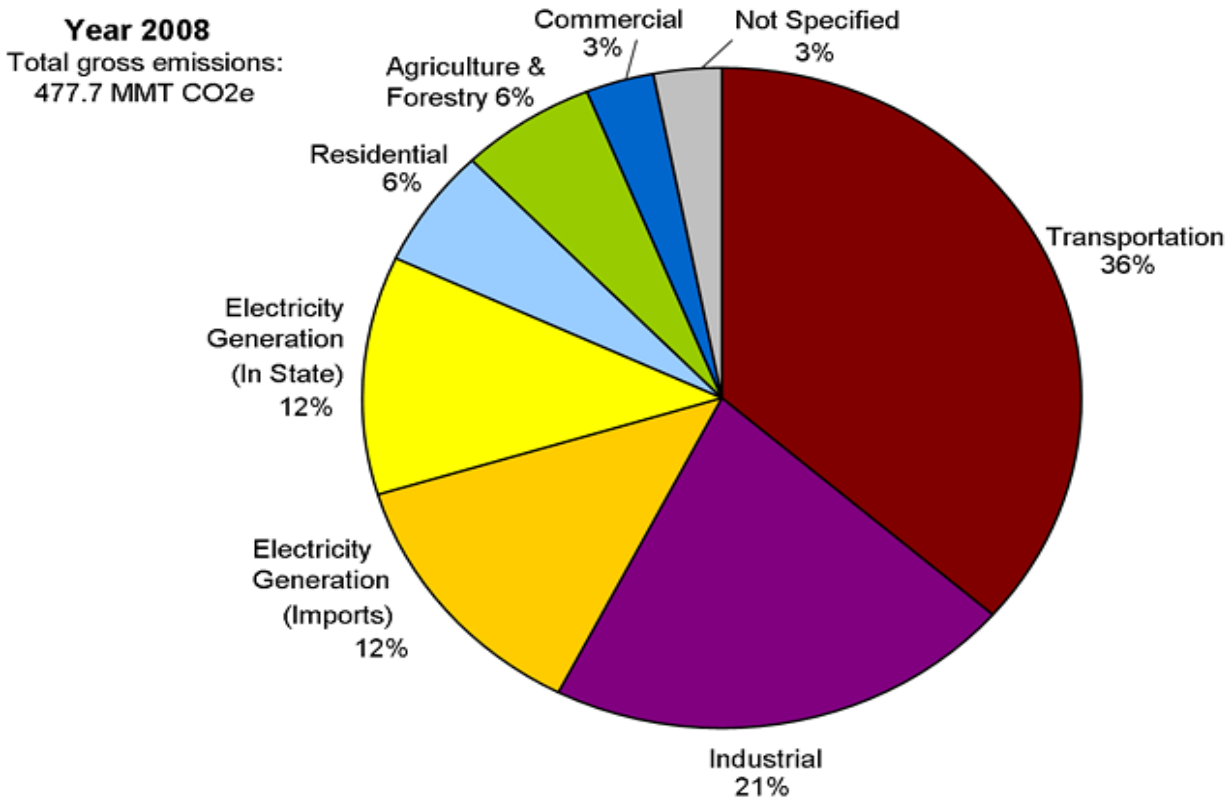
- *Industry:* Mainly stationary sources (e.g., boilers and engines) associated with process emissions
- *Commercial and Residential:* Area sources, such as landscape maintenance equipment, fireplaces, and consumption of natural gas for space and water heating
- *Agriculture:* Agricultural sources that include off-road farm equipment, irrigation pumps, crop residue burning (CO_2), and emissions from flooded soils, livestock waste, crop residue decomposition, and fertilizer volatilization (CH_4 and N_2O)
- *High-Global-Warming-Potential Gases:* Refrigerants and electrical insulation (e.g., SF_6), among other sources.
- *Recycling and Waste:* Waste management facilities and landfills. Primary emissions include CO_2 from combustion and CH_4 from landfills and wastewater treatment.

Emissions of CO_2 are byproducts of fossil fuel combustion. CH_4 results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices, livestock grazing, and landfills. N_2O is also largely attributable to agricultural practices and soil management. CO_2 sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through sequestration and dissolution, respectively, two of the most common processes of CO_2 sequestration.

State Greenhouse Gas Emissions Inventory As the second largest emitter of GHG emissions in the United States and 12th to 16th largest in the world (compared to other nations), California contributes a substantial amount of GHGs to the atmosphere (CEC 2006b). Emissions of CO_2 are typically byproducts of fossil-fuel combustion and are attributable in large part to human activities associated with the transportation, industry/manufacturing, electricity and natural gas consumption, and agriculture sectors (ARB 2010a). In California, the transportation sector is the largest emitter of GHGs, followed by industrial sources and electricity generation (ARB 2010b) (Exhibit 3.4-1).

Regional Greenhouse Gas Emission Inventories Sacramento County (County) has developed 2005 GHG inventories for the entire Sacramento County, including the cities (Sacramento County 2009b). The inventories define a baseline emissions level from which the County and each of the cities can begin to quantify efforts to reduce emissions to comply with AB 32 goals. These inventories also identify the largest contributing sectors to GHG emissions and, thus, these inventories can be used to make informed decisions about potential, effective GHG controls.

Sacramento County's community-wide GHG emissions totaled approximately 13.9 million MT CO_2e in 2005; on-road transportation emissions accounted for 48% of the county's GHG emissions, followed by 18% from residential land uses and 16% from commercial and industrial land uses (Sacramento County 2009b:ES-5).



Note: MMT CO_2e = million metric tons carbon dioxide equivalent.
Source: ARB 2010b

Exhibit 3.4-1: 2008 California GHG Emissions by Sector (2000–2008 Emission Inventory)

Regulatory Setting

Federal Plans, Policies, Regulations, and Laws The following Federal laws related to climate change are relevant to the project and are described in detail in Section 5.6, "Compliance with Related Laws, Rules, Regulations, and Executive Orders":

- Supreme Court Ruling on California Clean Air Act Waiver
- Mandatory Greenhouse Gas Reporting Rule
- Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Clean Air Act
- National Program to Cut Greenhouse Gas Emissions and Improve Fuel Economy
- Council on Environmental Quality Draft NEPA Guidelines
- Executive Order 13423 and Executive Order 13514

State Plans, Policies, Regulations, and Laws ARB is the agency responsible for coordination and oversight of State and local air pollution control programs. Various

State and local initiatives to reduce California's contribution to GHG emissions have raised awareness that, even though the various contributors to and consequences of global climate change are not yet fully understood, global climate change is under way and real potential exists for severe, adverse environmental, social, and economic effects in the long term. Table 3.4-1 summarizes major State laws and executive orders addressing climate change. The most significant laws and orders are discussed in more detail after the table.

Table 3.4-1
Summary of State Laws and Executive Orders That Address Climate Change

Legislation Name	Signed into Law/ Ordered	Description	CEQA Relevance
SB 1771	September 2000	Establishment of California Climate Registry to develop protocols for voluntary accounting and tracking of GHG emissions.	In 2007, DWR began tracking GHG emissions for all departmental operations.
AB 1473	July 2002	Directs ARB to establish fuel standards for noncommercial vehicles that would provide the maximum feasible reduction of GHGs.	Reduction of GHG emissions from noncommercial vehicle travel.
SB 1078, 107, EO S-14-08	September 2002, September 2006, November 2008	Establishment of renewable energy goals as a percentage of total energy supplied in the State.	Reduction of GHG emissions from purchased electrical power.
EO S-3-05, AB 32*	June 2005, September 2006	Establishment of statewide GHG reduction targets and biennial science assessment reporting on climate change impacts and adaptation and progress toward meeting GHG reduction goals.	Projects required to be consistent with statewide GHG reduction plan and reports will provide information for climate change adaptation analysis.
SB 1368	September 2006	Establishment of GHG emission performance standards for base load electrical power generation.	Reduction of GHG emissions from purchased electrical power.
EO S-1-07	January 2007	Establishment of Low Carbon Fuel Standard.	Reduction of GHG emissions from transportation activities.
SB 97*	August 2007	Directs OPR to develop guideline amendments for the analysis of climate change in CEQA documents.	Requires climate change analysis in all CEQA documents.
SB 375	September 2008	Requires metropolitan planning organizations to include sustainable communities strategies in their regional transportation plans.	Reduction of GHG emissions associated with housing and transportation.
EO S-13-08*	November 2008	Directs the Natural Resources Agency to work with the National Academy of Sciences to produce a California Sea Level Rise Assessment Report. And directs CAT to develop a California Climate Adaptation Strategy.	Information in the reports will provide information for climate change adaptation analysis.

Notes: AB = Assembly Bill; ARB = California Air Resources Board; CAT = Climate Action Team; CEQA = California Environmental Quality Act; DWR = California Department of Water Resources; EO = Executive Order; GHG = greenhouse gas; OPR = Governor's Office of Planning and Research; SB = Senate Bill.
*Most significant laws and orders, elaborated further below.
Source: Data provided by DWR in 2010

California Environmental Quality Act and Senate Bill 97 CEQA requires lead agencies to consider the reasonably foreseeable adverse environmental effects of projects they are considering for approval. GHG emissions have the potential to adversely affect the environment because they contribute to global climate change. In turn, global climate change has the potential to raise sea levels, affect rainfall and snowfall, and affect habitat.

The provisions of Senate Bill (SB) 97, enacted in August 2007 as part of the State budget negotiations and codified at Section 21083.05 of the Public Resources Code, direct the California Governor's Office of Planning and Research (OPR) to propose CEQA Guidelines "for the mitigation of GHG emissions or the effects of GHG emissions." SB 97 directs OPR to develop such guidelines by July 2009 and directs the State Resources Agency (now Natural Resources Agency), the agency charged with adopting the State CEQA Guidelines, to certify and adopt such guidelines by January 2010. In April 2009, OPR prepared draft CEQA Guidelines and submitted them to the Natural Resources Agency (see below). On July 3, 2009, the Natural Resources Agency began the rulemaking process established under the Administrative Procedure Act. The Natural Resources Agency transmitted the adopted amendments and the entire rulemaking file to the Office of Administrative Law (OAL) on December 31, 2009. On February 16, 2010, the OAL approved the amendments and filed them with the Secretary of State for inclusion in the California Code of Regulations (CCR). The amendments became effective on March 18, 2010.

The amendments for GHGs fit within the existing CEQA framework for environmental analysis, which calls for lead agencies to determine baseline conditions and levels of significance and to evaluate mitigation measures. The new guideline amendments do not identify a threshold of significance for GHG emissions nor do they prescribe assessment methodologies or specific mitigation measures. The guidelines amendments encourage lead agencies to consider many factors in performing a CEQA analysis, but preserve the discretion for CEQA grants lead agencies to make their own determinations based on substantial evidence.

New State CEQA Guidelines CCR Section 15064.4, "Determining the Significance of Impacts from Greenhouse Gas Emissions," encourages lead agencies to consider the following factors to assess the significance of GHG emissions:

- Will the project increase or reduce GHGs as compared to baseline?
- Will the project's GHG emissions exceed the lead agency's threshold of significance?
- Does the project comply with regulations or requirements to implement a statewide, regional, or local GHG reduction or mitigation plan?

State CEQA Guidelines CCR Section 15064.4 also recommends that lead agencies make a good-faith effort, based on available information, to describe, calculate, or estimate the amount of GHG emissions associated with a project.

State CEQA Guidelines CCR Section 15126.4, "Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects," includes a description of the types of feasible mitigation measures available for consideration by lead agencies to reduce GHG emissions, including but not limited to project features, project design, or other measures that are incorporated into the project to substantially reduce energy consumption or GHG emissions; compliance with the requirements in a previously approved plan or mitigation program for the reduction or sequestration of GHG emissions, which plan or program provides specific requirements that will avoid or substantially lessen the potential impacts of the project; and measures that sequester carbon or carbon-equivalent emissions. In addition, amended State CEQA Guidelines CCR Section 15126.4 includes a requirement that where mitigation measures are proposed for reduction of GHG emissions through off-site measures or purchase of carbon offsets, these mitigation measures must be part of a reasonable plan of mitigation that the relevant agency commits itself to implementing.

In addition, as part of the State CEQA Guidelines amendments and additions, a new set of environmental checklist questions (VII, "Greenhouse Gas Emissions") have been added to Appendix G. The new set asks whether a project would:

- generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment or
- conflict with an applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

Preliminary Draft Staff Proposal: Recommended Approaches for Setting Interim Significance Thresholds for GHGs under CEQA CEQA gives discretion to lead agencies to establish thresholds of significance based on individual circumstances. To assist in that exercise, and because OPR believes the unique nature of GHGs warrants investigation of a statewide threshold of significance for GHG emissions, OPR engaged the ARB technical staff to recommend a methodology for setting thresholds of significance. In October 2008, ARB released *Preliminary Draft Staff Proposal: Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act* (ARB 2008a). This draft proposal included a conceptual approach for thresholds associated with industrial, commercial, and residential projects. With respect to nonindustrial projects, the steps to presuming a less-than-significant impact related to climate change generally include analyzing whether the project is exempt under existing statutory or categorical exemptions, complies with a previously approved plan or target, meets specified minimum performance standards, and falls below an as yet unspecified annual emissions level (ARB 2008a). The performance standards focus on construction activities, energy and water consumption, generation of solid waste, and transportation. For industrial projects, the draft proposal recommends a tiered analysis procedure similar to nonindustrial projects. However, a quantitative annual emissions limit for less-than-significant impacts is established at approximately 7,000 MT CO_2e for industrial projects. To date, these standards have not been adopted or finalized as a basis to evaluate the significance of a project's contribution to climate change. They are provided here for informational purposes only and to provide context

for determinations of specific levels of emissions that could be considered significant or cumulatively considerable.

Executive Order S-20-04 EO S-20-04 directed state agencies, departments, and other entities to cooperate in taking measures to reduce grid-based energy purchases for state-owned buildings by 20% by 2015. These measures include, but are not limited to:

- Designing, constructing and operating all new and renovated state-owned facilities paid for with state funds as "LEED Silver" or higher certified buildings; and
- Identifying the most appropriate financing and project delivery mechanisms to achieve these goals;
- Seeking out office space leases in buildings with a U.S. EPA Energy Star rating; and
- Purchasing or operating Energy Star electrical equipment whenever cost-effective.

These measures are designed to reduce state building electricity usage by retrofitting, building and operating the most energy and resource efficient buildings.

Executive Order S-3-05 EO S-3-05 made California the first state to formally establish GHG emissions reduction goals. EO S-3-05 includes the following GHG emissions reduction targets for California:

- by 2010, reduce GHG emissions to 2000 levels;
- by 2020, reduce GHG emissions to 1990 levels; and
- by 2050, reduce GHG emissions to 80% below 1990 levels.

The final emission target of 80% below 1990 levels would put the State's emissions in line with estimates of the required worldwide reductions needed to bring about long-term climate stabilization and avoidance of the most severe impacts of climate change (IPCC 2007).

EO S-3-05 also dictated that the Secretary of the California Environmental Protection Agency coordinate oversight of efforts to meet these targets with the Secretary of the Business, Transportation and Housing Agency; Secretary of the Department of Food and Agriculture; Secretary of the Resources Agency (now Natural Resources Agency); Chairperson of the ARB; Chairperson of the Energy Commission; and the President of the Public Utilities Commission. This group was subsequently named the Climate Action Team (CAT).

As laid out in the EO, the CAT has submitted biannual reports to the governor and State legislature describing progress made toward reaching the targets. The CAT is in the process of finalizing its second biannual report on the effects of climate change on California's resources.

Assembly Bill 32 In 2006, California passed the California Global Warming Solutions Act of 2006 (AB 32; California Health and Safety Code Division 25.5, Sections 38500, et seq.). AB 32 further details and puts into law the mid-term GHG reduction target established in EO S-3-05—reduce GHG emissions to 1990 levels by 2020. AB 32 also identifies ARB as the State agency responsible for the design and implementation of emissions limits, regulations, and other measures to meet the target.

The statute lays out the schedule for each step of the regulatory development and implementation.

- By June 30, 2007, ARB had to publish a list of early-action GHG emission reduction measures.
- Prior to January 1, 2008, ARB had to identify the current level of GHG emissions by requiring statewide reporting and verification of GHG emissions from emitters and identify the 1990 levels of California GHG emissions.
- By January 1, 2010, ARB had to adopt regulations to implement the early-action measures.

In December 2007, ARB approved the 2020 emission limit (1990 level) of 427 million MT of CO_2e of GHGs. The 2020 target requires the reduction of 169 million MT of CO_2e (or approximately 30% below the state's projected "business-as-usual" 2020 emissions of 596 million MT of CO_2e).

Also in December 2007, ARB adopted mandatory reporting and verification regulations pursuant to AB 32. The regulations became effective January 1, 2009, with the first reports covering 2008 emissions. The mandatory reporting regulations require reporting for major facilities, those that generate more than 25,000 MT/year of CO_2e. To date ARB has met all of the statutorily mandated deadlines for promulgation and adoption of regulations.

Climate Change Scoping Plan On December 11, 2008, pursuant to AB 32, ARB adopted the Climate Change Scoping Plan (Scoping Plan). This plan outlines how emissions reductions will be achieved from significant sources of GHGs via regulations, market mechanisms, and other actions. Six key elements, outlined in the scoping plan, are identified to achieve emissions reduction targets:

- expanding and strengthening existing energy efficiency programs, as well as building and appliance standards;
- achieving a statewide renewable energy mix of 33%;
- developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets;

- adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and

- creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the state's long-term commitment to AB 32 implementation.

The Scoping Plan also includes recommended 39 measures that were developed to reduce GHG emissions from key sources and activities while improving public health, promoting a cleaner environment, preserving our natural resources, and ensuring that the impacts of the reductions are equitable and do not disproportionately impact low-income and minority communities. These measures also put the State on a path to meet the long-term 2050 goal of reducing California's GHG emissions to 80% below 1990 levels.

The measures in the Scoping Plan are intended to be developed over the next year and be in place by 2012. However, a January 2011 Superior Court decision invalidated the environmental review for alternatives to the Scoping Plan. The effect of this decision on implementation of AB 32 and the Scoping Plan has yet to be determined.

Executive Order S-13-08 EO S-13-08, issued November 14, 2008, directs the California Natural Resources Agency, DWR, OPR, California Energy Commission, State Water Resources Control Board, California State Parks and Recreation, and California's coastal management agencies to participate in a number of planning and research activities to advance California's ability to adapt to the impacts of climate change. The order specifically directs agencies to work with the National Academy of Sciences to initiate the first California Sea Level Rise Assessment and to review and update the assessment every 2 years after completion; immediately assess the vulnerability of the California transportation system to sea level rise; and to develop a California Climate Change Adaptation Strategy.

California Climate Change Adaptation Strategy In cooperation and partnership with multiple State agencies, the 2009 California Climate Adaptation Strategy summarizes the best known science on climate change impacts in seven specific sectors (public health, biodiversity and habitat, ocean and coastal resources, water management, agriculture, forestry, and transportation and energy infrastructure) and provides recommendations on how to manage against those threats.

Regional and Local Plans, Policies, Regulations, and Ordinances ARB's Scoping Plan (ARB 2008b) states that local governments are "essential partners" in the effort to reduce GHG emissions. The Scoping Plan also acknowledges that local governments have "broad influence and, in some cases, exclusive jurisdiction" over activities that contribute to significant direct and indirect GHG emissions through their planning and permitting processes, local ordinances, outreach and education efforts, and municipal operations. Many of the proposed measures to reduce GHG emissions rely on local government actions. The Scoping Plan encourages local governments to reduce GHG emissions by approximately 15% from current levels by 2020 (ARB 2008b).

Sacramento Metropolitan Air Quality Management District The Sacramento Metropolitan Air Quality Management District (SMAQMD) attains and maintains air quality conditions in Sacramento County through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. In December 2009, SMAQMD released an update to its previously adopted guidelines document. This Guide to Air Quality Assessment in Sacramento County (SMAQMD 2009) is an advisory document that provides lead agencies, consultants, and project applicants with methods for analyzing and reviewing air quality and GHG impacts from land use development projects being considered within SMAQMD jurisdiction. The handbook contains guidance for quantifying GHG emissions from land use projects and provides guidance and analysis expectations for the evaluation of GHG emissions. The SMAQMD guidance was used to perform the GHG analysis in this EIS/EIR section.

Sacramento County The County Board of Supervisors approved the first phase of a climate action plan (CAP) that will provide a framework for reducing GHG emissions. The first phase focuses on the County's overall strategy and goals for addressing climate change (Sacramento County 2009a). Key goals in the first phase include reducing vehicle miles traveled (VMT) per capita in the region; improving energy efficiency of all existing and new buildings; emphasizing water use efficiency as a way to reduce energy consumption; maximizing waste diversion, composting, and recycling through residential and commercial programs; protecting important farmland and open space from conversion and encroachment; and maintaining connectivity of protected areas.

Sacramento County General Plan No goals, policies, or objectives in the *1993 County of Sacramento General Plan* (Sacramento County 1993) apply explicitly to climate change. However, many of the general plan's air quality policies contribute to reducing GHG emissions, including the following:

- **Policy AQ-3:** Promote optimal air quality benefits through energy conservation measures in new development.
- **Policy AQ-4:** Support SMAQMD's development of improved ambient air quality monitoring capabilities and the establishment of standards, thresholds and rules to more adequately address the air quality impacts of proposed project plans and proposals.
- **Policy AQ-5:** Require BACT [Best Available Control Technology] to reduce air pollution emissions.
- **Policy AQ-6:** Provide disincentives for single-occupant vehicle trips through parking supply and pricing controls in areas where supply is limited and alternative transportation modes are available so as not to cause economic disruption, or through other measures identified by SMAQMD and incorporated into regional plans.
- **Policy AQ-7:** Support the use of demand management and pricing controls as near-term measures for attaining AQAP [Air Quality Attainment Plan] goals and policies.

- **Policy AQ-8:** Implement the Sacramento City/County Bikeways Master Plan.

- **Policy AQ-9:** Secure adequate funding for Regional Transit so that transit is a viable transportation alternative. Development shall pay its fair share of the cost of transit facilities required to serve the project.

- **Policy AQ-15:** All new major indirect sources of emissions shall be reviewed and modified or conditioned to achieve a reduction in emissions. This indirect source review program will be developed in coordination with SACOG [Sacramento Area Council of Governments] and SMAQMD, and include the following features:

  - A 15% reduction in emissions from the level that would be produced by a base-case project assuming full trip generation per the current Institute of Transportation Engineers (ITE) Trip Generation Handbook.

  - A focus on cost-effectiveness measured in terms of cost per ton of pollutant avoided.

  - A list of cost-effective measures to be developed, maintained, and annually reviewed by SMAQMD.

  - A maximum expenditure cap which will be computed for each indirect source on the basis of factors including, but not limited to, total emissions and project value.

  - A process for obtaining a waiver from the 15% requirement if it is found that a lower level of reduction is all that can be achieved with cost-effective measures and offsets, or that achieving the full 15% reduction would cost more than expenditure cap.

  - An exception for projects which have already undergone the indirect source review at some point in the development approval process.

  - A procedure to give full credit for other measures required in a project that may also achieve a reduction in emissions.

- **Policy AQ-17:** Require that development projects be located and designed in a manner which will conserve air quality and minimize direct and indirect emission of air contaminants.

- **Policy AQ-18:** Encourage employment-intensive development, having the potential to employ 200 or more employees, where adequate transit service is planned, and discourage such development where adequate transit service is not planned.

- **Policy AQ-19:** Identify the air quality impacts of development proposals to avoid significant adverse impacts and require appropriate mitigation measures or offset fees.

- **Policy AQ-20:** Submit development proposals to SMAQMD for review and comment in compliance with CEQA prior to consideration by the appropriate decision making body.
- **Policy AQ-21:** Provide for the location of ancillary employee services (including, but not limited to, child care, restaurants, banking facilities, convenience markets) at major employment centers for the purpose of reducing midday vehicle trips.
- **Policy AQ-24:** Provide for increased intensity of development along existing and proposed transit corridors.
- **Policy AQ-25:** Require that new development be designed to promote pedestrian and bicycle access and circulation.
- **Policy AQ-26:** Accommodate growth within existing urban areas (infill) as a priority over urban expansion.
- **Policy AQ-37:** Maximize air quality benefits through selective use of vegetation in landscaping and through revegetation of appropriate areas.

Sacramento County General Plan Update Sacramento County is in the process of preparing a draft Sacramento County General Plan Update (Sacramento County 2010) and EIR to plan for growth in the period 2010–2030. Until that EIR has been certified and the update has been adopted by the Sacramento County Board of Supervisors, the 1993 general plan remains in effect. Following receipt of a third-party review in December 2010, hearings on the general plan began in spring 2011 and are ongoing.

City of Rancho Cordova The City of Rancho Cordova has not developed a CAP or a similar GHG emissions reduction plan for GHG emission-generating activity in its jurisdiction. The *Rancho Cordova General Plan* (City of Rancho Cordova 2006) does not contain any goals or policies that explicitly relate to climate change or GHG emissions. However, many of the general plan's air quality policies contribute to reducing GHG emissions, including the following:

- **Policy AQ.2.1:** Promote strategic land use patterns for businesses that reduce the number and length of motor vehicle trips and that encourage multiple forms of transportation for employees and patrons.
- **Policy AQ.2.3:** Encourage infill development as a way to reduce vehicle trips and improve air quality.
- **Policy AQ.2.4:** Maximize air quality benefits through selective use of landscaping vegetation that is low in emission of volatile organic compounds, and through revegetation of appropriate areas.
- **Policy AQ.3.1:** Promote walking and bicycling as viable forms of transportation to services, shopping, and employment.

- **Policy AQ.3.2:** Promote mass transit as an alternative to single-occupant motor vehicle travel.
- **Policy AQ.3.4:** Emphasize "demand management" strategies that seek to reduce single occupant vehicle use in order to achieve state and federal air quality plan objectives.
- **Policy AQ.4.1:** Promote improved air quality benefits through energy conservation measures for new and existing development.
- **Policy AQ.4.3**: Support SMAQMD's program of retrofitting construction equipment to reduce air pollution.
- **Policy AQ.5.1:** Encourage employers to participate in SMAQMD's public education programs.

3.4.2 Environmental Consequences and Mitigation Measures

Methods

A single project is unlikely to have a significant impact on the environment concerning climate change. However, the cumulative effect of various human activities involving emissions of GHGs has been clearly linked to quantifiable changes in the composition of the atmosphere, which in turn have been shown to be the main cause of global climate change (IPCC 2007). Therefore, the analysis of the environmental effects of GHG emissions from the project is addressed as a cumulative impact analysis because, although it is extremely unlikely that a single project would contribute significantly to climate change, cumulative emissions from many projects could affect global GHG concentrations and the climate system.

For the purposes of this analysis, both the total GHG emissions associated with the project and the net change in GHG emissions from existing conditions are quantified and used as criteria to determine whether the associated emissions would substantially help or hinder the state's ability to attain the goals identified in AB 32 (i.e., reduction of statewide GHG emissions to 1990 levels by 2020).

This analysis of GHG emissions recognizes that the impact GHG emissions have on global climate change does not depend on whether the emissions are generated by stationary, mobile, or area sources, or whether they are generated in one region or another. Land uses need to be "GHG-efficient" to attain AB 32 goals. Projects that meet specified minimum performance standards, such as those described in an existing plan or mitigation program for the reduction of emissions or specific measures adopted as part of a general plan, long-range development plan, or GHG emission reduction plan (State CEQA Guidelines CCR 15126.4[c]), can be identified as projects that are consistent with or surpass the goals of AB 32.

- According to SMAQMD, construction emissions associated with a project should be amortized over the life of the project (typically 30 years) and added to the operational emissions. Therefore, modeled construction-related GHG emissions associated with

the Proposed Action and Alternative 1 are discussed first, then operational GHG emissions are estimated, and the amortized construction emissions are added to the operational emissions.

Construction Emissions Construction-related GHG emissions associated with typical construction activities, such as site grading and construction of the buildings, were modeled using URBEMIS2007 Version 9.2.4. URBEMIS2007 is a construction and land use development emissions model recommended by ARB and SMAQMD to quantify construction (and operational) emissions. Mobile-source GHG emissions associated with the construction worker commutes were also quantified by the URBEMIS model.

Operational Emissions After construction, day-to-day activities associated with operation of the project would generate GHG emissions from a variety of sources. GHG emissions were estimated consistent with acceptable methodology and models, including the Local Government Operations Protocol, URBEMIS 2007 Version 9.2.4, and BAAQMD Greenhouse Gas Model (BGM) version 1.1.9 beta, which was developed for use with URBEMIS. BGM estimates operational GHG emissions associated with development of a project (apart from and including those already calculated in URBEMIS), including transportation, electricity, natural gas, solid waste, water and wastewater, and area source (hearth and landscaping) emissions. URBEMIS and BGM also calculate GHG reductions associated with various mitigation measures. Because BGM was developed using vehicle fleet characteristics, energy consumption, waste generation, and water use and wastewater generation data specific to the San Francisco Bay Area, Sacramento Valley, or project-specific data were used in place of BGM defaults, where available.

Assumptions

The project is anticipated to be constructed over a 24-month period, conservatively estimated to begin in approximately 2012. Construction-related GHG emissions would be generated by sources such as heavy-duty construction equipment, on-site generators, and construction worker vehicles. Construction parameters, such as schedule, construction activities, origin/destination of construction materials, and types and number of equipment, were provided by Reclamation and DWR where sufficient information has been developed. The first phase of construction would focus on preparing the site and connecting utilities, ensuring that sufficient utility infrastructure is available to the project site. This phase would take approximately 10 months to complete. The second phase would involve constructing the buildings, which would include excavating for foundations; constructing the piers, foundations, frames, and decking; placing the exterior surface on the building frame; and finishing the building interior. This phase also involves completing final site work (e.g., landscaping). The second phase is estimated to take approximately 14 months. Where project-specific information was not available, construction assumptions were obtained from default settings for the air quality modeling (as described in the Air Quality Impact Assessment Technical Study) or provided by engineers under contract to DWR.

- To comply with Federal EO 13514 (described in Section 5.6, “Compliance with Related Laws, Rules, Regulations, and Executive Orders”), the project would be

third-party certified to meet the requirements of the sustainable rating system developed by an ANSI-accredited organization or would be assessed by Reclamation and found to meet the Guiding Principles. Additionally, for Reclamation to comply with the Energy Independence and Security Act of 2007 in leasing the property from DWR, the space must earn an "Energy Star" label. Compliance with Energy Star requirements also supports Guiding Principle requirements related to energy conservation as described above.

- Under California law, the project must meet California Green Building Code requirements and be certified Leadership in Energy and Environmental Design (LEED®) Silver Rating. LEED prerequisites include water use reduction by 20% from baseline, minimum energy performance (either 10% reduction from baseline or compliance with the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Advanced Energy Design Guide), and commissioning of building energy systems (to verify proper installation and calibration of energy systems). The California Green Building Code is intended to achieve more than a 15% reduction in energy usage when compared to baseline usage. To comply with these requirements, the building would need to be designed and constructed to the highest environmental standards, which would ensure that its operation would be highly efficient and would require considerably less energy and water than existing buildings.

- The proposed JOC facility would replace the use of the Interim JOC; energy and water efficiency are assumed to be increased at the proposed facility because of the regulatory requirements described above. In addition, the new facility (at either location) would be more accessible by light rail and mass transit than the Interim JOC, resulting in assumed improvements in transportation efficiency for employees and visitors.

The No-Action Alternative assumes that Reclamation, DWR, and NWS would continue to occupy their present space at the Interim JOC. The additional employees that are assumed to be needed for ongoing operations with the Proposed Action and Alternatives 1 and 2 would need to be located at other facilities. To evaluate the GHG emissions that would result with this scenario, this analysis assumes these employees would travel the default distance of 10.8 miles for an urban home-to-work trip included in the URBEMIS 2007 model.

Regulatory Changes Related to GHG Emissions ARB's Scoping Plan includes measures that would indirectly address GHG emissions levels associated with construction activity, including the phasing in of cleaner technology for diesel engine fleets (including construction equipment) and the development of a Low Carbon Fuel Standard. Successful implementation of these measures will predominantly depend on the development of future laws and policies at the State level, rather than separate actions by individual agencies or local governments. Thus, those policies formulated under the mandate of AB 32 that are applicable to construction-related activity, either directly or indirectly, are assumed to be implemented during construction of the Proposed Action or Alternative 1 if those policies and laws are developed before construction begins.

Criteria for Determining Significance of Effects

Determinations of significance in this EIS/EIR are based on the environmental checklist in Appendix G of the State CEQA Guidelines, as amended. These determinations are provided pursuant to CEQA. The Proposed Action and alternatives under consideration would be considered to have a significant impact related to climate change and GHG if they would:

- generate GHG emissions, either directly or indirectly, that may have a significant cumulative impact on the environment, or
- conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

As stated in Appendix G, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the above determinations. However, at the time of this writing, neither ARB nor SMAQMD has adopted quantitative thresholds of significance for GHG emissions. Therefore, to establish additional context in which to consider the order of magnitude of the project's construction-related and operational GHG emissions, this analysis considers the following guidelines on the levels of GHG emissions that would constitute a cumulatively considerable incremental contribution to climate change:

- Facilities (i.e., stationary, continuous sources of GHG emissions) that generate greater than 25,000 MT CO_2e per year are mandated to report their GHG emissions to ARB pursuant to AB 32.
- Stationary sources that generate greater than 10,000 MT CO_2 per year may be required to participate in the cap-and-trade program through the Western Climate Initiative (ARB 2009).
- The South Coast Air Quality Management District GHG Working Group has proposed a significance screening level of 3,000 MT CO_2 per year for residential and commercial projects (SCAQMD 2010).
- The Bay Area Air Quality Management District (BAAQMD) has adopted 1,100 MT CO_2e per year as a project-level "bright line" GHG significance threshold that would apply to operational emissions from mixed land use development projects.
- BAAQMD also encourages lead agencies to incorporate the following best management practices to reduce GHG emissions during construction, as applicable:
    - use of alternative-fueled (e.g., biodiesel, electric) construction vehicles/equipment for at least 15% of the fleet;
    - use of at least 10% local building materials (within 100 miles); and
    - recycling of at least 50% of construction waste or demolition materials.

- At the time of this writing, no Federal, State, regional, or local air quality regulatory agency has adopted a quantitative threshold of significance for construction-related GHG emissions. This information is presented for informational purposes only, and it is not the intention of Reclamation or DWR to adopt any of the above-listed emission levels as a quantitative threshold. Rather, the intention is to put project-generated GHG emissions into the appropriate statewide context to evaluate whether the GHG emissions contribution from the project to the global impact of climate change would reach the level of a considerable incremental contribution to a significant cumulative impact.

Impact Analysis

Impact 3.4-1: Generation of Construction-Related and Operational Greenhouse Gas Emissions That Have a Cumulative Effect on the Environment

No-Action

Under the No-Action Alternative, no construction activities would occur; therefore, the No-Action Alternative would not generate construction-related GHG emissions. GHG emissions would continue to be generated by existing employees and building operations at current levels, but would likely be reduced over time by improvements in motor vehicle technology and exhaust controls. Because no change from existing conditions is anticipated with the No-Action Alternative, **no direct impact** would occur.

An **indirect** increase in operational GHG emissions could result if increased staffing becomes necessary to perform the required duties of the Reclamation, DWR, and NWS offices and operations centers housed at the Interim JOC. In that event, additional employees would be hired at other Reclamation, DWR, or NWS facilities in the Sacramento area, requiring these employees to travel to the Interim JOC to fulfill their job requirements rather than being housed in the same facility. The number of additional employees is estimated at 100 (the amount of expansion anticipated at the new facility). The total CO_2e emissions associated with the additional VMT are estimated at 468 metric tons and would be substantially less than any of the adopted or proposed thresholds discussed earlier. The **indirect** impact would be **less than significant**.

Proposed Action and Alternative 1

The Proposed Action and Alternative 1 would have the same construction and operational GHG emissions because the buildings in each would be the same size and the operational emissions would be identical. Total construction emissions for the Proposed Action and Alternative 1 were estimated using URBEMIS 2007 Version 9.2.4. GHG emissions generated by construction would be primarily in the form of CO_2. Although emissions of other GHGs, such as CH_4 and N_2O, are important with respect to global climate change, the emission levels of these other GHGs from on- and off-road vehicles used during construction are relatively small compared with the level of CO_2 emissions, even when factoring in the relatively larger global warming potential of CH_4 and N_2O.

Construction-related GHG emissions would be generated by sources such as heavy-duty off-road equipment, trucks hauling materials to the site, and worker commutes during construction of the project would result in exhaust emissions of GHGs. Depending on the construction activities occurring on a given day, construction-related GHG emissions would vary substantially. On some days, GHG exhaust emissions would be generated from heavy-duty construction equipment, haul trucks, and construction worker vehicles. Conversely, some days would involve lower levels of construction activities or would only involve construction workers trips. Therefore, based on this information, the analysis uses total construction-related GHG emissions to evaluate the proposed project. Calculations and assumptions are provided in Appendix C2, "Climate Change and Greenhouse Gas Emission Modeling Assumptions and Results."

- According to SMAQMD, construction emissions associated with a project should be amortized over the life of the project (typically 30 years) and added to the operational emissions. Therefore, modeled construction-related GHG emissions associated with the Proposed Action and Alternative 1 are discussed first, then operational GHG emissions are estimated, and the amortized construction emissions are added to the operational emissions.

While GHG emissions persist in the atmosphere for extended periods of time, construction-related emissions would only be generated during the 24-month of activity construction period (either phased or unphased). Therefore, construction emissions were amortized over the life of the project (typically 30 years) and compared to the operational thresholds to determine the significance of the project. The maximum construction emissions over the construction period for the Proposed Action or Alternative 1 would be approximately 687 metric tons of CO_2e. When this total is amortized over the 30-year life of the project, the annual construction emissions would be approximately 23 metric tons CO_2e per year (Appendix C2, "Climate Change and Greenhouse Gas Emission Modeling Assumptions and Results.").

Operational emissions may be both direct and indirect emissions and would be generated by area, mobile, and stationary sources. Area-source emissions would be associated with activities such as combustion of natural gas and maintenance of landscaping and grounds. Mobile-source emissions of GHGs would include project-generated vehicle trips for employees and visitors. Lastly, solid waste and wastewater generated by building activities would result in direct, off-site emissions of GHGs.

Indirect emissions sources include stationary-source emissions from electricity generation at off-site utility providers that would supply power to the building. Consumption of water would also result in indirect GHG emissions because of the electricity consumption associated with the off-site conveyance, distribution, and treatment of that water.

Tree removal could result in a loss of carbon sequestration in the project area. Carbon sequestration is the process through which GHGs are absorbed by trees, plants and crops through photosynthesis, and stored as carbon in biomass (tree trunks, branches, foliage and roots) and soils. The Proposed Action would result in the removal of oak woodland habitat. The exact number and sizes of oak trees being removed has not yet been determined, but approximately 1.01 acres would be removed with the campus-style option. The California Department of Forestry & Fire Protection provides estimates of carbon sequestered by native California trees for common species [CAL FIRE 2011]. Different vegetation types sequester different amounts of carbon; hardwood trees on private land can sequester up to 94 metric tons of carbon per acre. Carbon sequestration can be expressed in terms of CO_2 emissions by converting each metric ton of carbon to CO_2 by a factor of 3.66. Therefore, removal of trees at the Proposed Site could result in a loss of carbon sequestration of a maximum of 344 metric tons of CO_2 emissions.

However, this potential loss in carbon sequestration at the Proposed Site would be reduced by implementation of Mitigation Measure 3.3-2. Detailed estimates of changes in carbon sequestration are not included in the overall quantitative analysis presented in Table 3.4-2. Implementation of Mitigation Measure 3.3-2, as discussed in Section 3.3, "Biological Resources," would fully reduce the loss of oak woodland habitat by avoiding and/or replacing native oak woodlands to sufficiently promote the continued viability of the habitat at the project site. The Sacramento County Tree Preservation Ordinance requires that oaks must be replaced with in-kind species at the diameter which shall equal the combined diameter of the trees removed. If the project site is not capable of supporting all replacement trees, the replacement cost must be paid to the Sacramento County Tree Preservation Fund. Therefore, there is no expected loss of long-term carbon sequestration as a result of the Proposed Action. Since construction at the Alternative 1 Site would not result in the loss of oak woodland habitat, there would also be no loss of long-term carbon sequestration as a result of Alternative 1.

Table 3.4-2
Proposed Action or Alternative 1—Annual Greenhouse Gas Emissions

Emissions	Existing Emissions MT CO_2e	Proposed Action or Alternative 1 MT CO_2e	Net Change MT CO_2e
On-road mobile sources (transportation)	2,914	2,421	(493)
Energy use	1,294	1,612	318
Natural gas	236	280	44
Water use-related	26	27	1
Solid waste	387	387	(0)
Total operational	**4,889**	**4,727**	(162)
Amortized construction emissions*	**–**	**23**	23
Total annual GHG emissions	**4,889**	**4,750**	(139)

Note: CO_2e = carbon dioxide equivalent; MT = metric ton.
*Assumes 30 years of operation in accordance with SMAQMD's recommended methodology.
Source: Modeled by AECOM in 2010

A summary of the operational GHG emissions were estimated for the Baseline (existing) Conditions and the Proposed Action/Alternative 1 (Table 3.4-2). The annual operational emissions levels were estimated using the best available methodologies and emission factors available at the time of this analysis. CEQA analyses use a baseline of existing physical conditions to analyze and measure environmental impacts from a proposed project. The existing GHG emissions listed in Table 3.4-2 include estimates for the Interim JOC located in a leased building near Watt Avenue, including worker commutes and current building operations. Trip generation rates are assumed to be similar for the existing conditions and the Proposed Action.

Despite implementing measures to improve energy efficiency, overall energy usage and associated GHG emissions are projected to increase as a result of additional square footage being occupied at the JOC. However, as shown in Table 3.4-2, the total annual emissions of CO_2e associated with the Proposed Action or Alternative 1 would be reduced compared to existing conditions because of reductions in GHG emissions associated with the Pavley bill, Low Carbon Fuel Standard, and other transportation-related measures. Thus, the total construction-related and operational CO_2e emissions associated with the Proposed Action or Alternative 1 would be less than any of the adopted or proposed thresholds discussed earlier. As a result, implementing the Proposed Action or Alternative 1 would not generate GHG emissions that would constitute a cumulatively considerable incremental contribution to a significant cumulative impact; therefore, the **direct** impact would be **less than significant**. **No indirect impacts** would occur.

Mitigation Measure: No mitigation is required.

Alternative 2

GHG emissions were estimated for the increment of development associated with Alternative 2, as they were not assessed in the original Mather Field Specific Plan EIR. Based on the information contained in the Mather Field Specific Plan FEIR, the building that Reclamation and DWR would use for the new JOC at the Alternative 2 Site is already constructed; therefore, a loss of oak woodland habitat would not occur and there would be no loss of long-term carbon sequestration as a result of Alternative 2. Two buildings would be occupied under Alternative 2 - Building A and Building B. Because Building A was constructed in 2009, its construction-related GHG emissions are part of existing conditions since the space would only be leased and not constructed. Therefore, the incremental emissions associated with construction of Building B were calculated based on the square footage of Building A (110,960 square feet) subtracted from the square footage of the Proposed Action and Alternative 1 (200,000 square feet). Construction-related GHG emissions were modeled using URBEMIS, assuming that construction would occur over 2 years (beginning in 2013 and ending in 2015). Operational GHG emissions were calculated using BGM (with output from URBEMIS, based on trip generation rates described in the traffic study). Transportation emissions from URBEMIS were reduced to account for the Pavley

I regulation and the LCFS in the year 2015. Results are summarized in Table 3.4-3. See Appendix C-2, "Climate Change and Greenhouse Gas Emission Modeling Assumptions and Results" for details.

Table 3.4-3
Alternative 2—Annual Greenhouse Gas Emissions

Emissions	Existing Emissions MT CO_2e	Alternative 2 Unmitigated MT CO_2e	Alternative 2 Mitigated MT CO_2e	Net Change MT CO_2e
On-road mobile sources (transportation)	2,914	1,238	1,052	(1,862)
Area Sources		0	0	
Electricity use	1,294	524	524	(770)
Natural gas	236	110	110	(126)
Water use-related	26	11.9	9.5	(16.5)
Solid waste	387	172	172	(215)
Total operational	**4,889**	**2,057**	**1,869**	**(3,020)**
Amortized construction emissions*	**–**	**22**	**22**	**22**
Total annual GHG emissions	**4,889**	**2,079**	**1,891**	**(2,998)**

Note: CO_2e = carbon dioxide equivalent; MT = metric ton.
*Assumes 30 years of operation.
Source: Modeled by AECOM in 2011

Amortized construction plus operational GHG emissions before mitigation are approximately 2,079 MT CO_2e per year at buildout. As shown on page 146-147A of the Mather Field Specific Plan, a 15-point air quality management plan (AQMP) was developed to reduce VMT and NO_X emissions. Assuming that an approximate 15% reduction in VMT would occur due to implementation of the AQMP, a corresponding 15% in GHG emissions would result as a co-benefit. Additionally, the Mather Field Specific Plan specifies a 20% reduction in indoor water use by the buildout date of 2015. After reducing mobile GHG emissions by 15% and indoor water use by 20%, the resulting amortized construction plus operational GHG emissions after mitigation would be approximately 1,891 MT CO_2e per year at buildout.

When compared to existing conditions, both the unmitigated and mitigated GHG emissions related to construction and operation of Alternative 2 are lower than existing GHG emissions. Thus, the total construction-related and operational CO_2e emissions associated with Alternative 2 would be less than any of the adopted or proposed thresholds discussed earlier. As a result, implementing Alternative 2 would not generate GHG emissions that would constitute a cumulatively considerable incremental contribution to a significant cumulative impact; therefore, the **direct** impact would be **less than significant**. **No indirect impacts** would occur.

Mitigation Measure: No mitigation is required.

Impact 3.4-2: Conflict with an Applicable Plan, Policy, or Regulation Adopted to Reduce Greenhouse Gas Emissions

No-Action

Under the No-Action Alternative, no construction activities would occur and no expansion of the Interim JOC would be possible. The No-Action Alternative would continue to operate as under existing conditions. DWR participates in a transportation incentive program to encourage employees to use alternate means of transportation when commuting to and from work. This program promotes air quality, reduces traffic congestion, and conserves energy by reducing the number of single occupancy vehicles on the road. The incentives program promotes alternative means of transportation by providing financial incentives to ride mass transit and van/carpool to work.

In addition to the transportation incentive program, DWR provides opportunities to reduce transportation for business activities. To reduce daily traveling for meetings, the JOC will have installed video teleconference systems, and WebEx offering collaboration solutions for online meetings, and access to webinars and online events. These programs would continue to operate under the No-Action Alternative.

This **direct** impact would be less than **significant**. No **indirect** impact would occur.

Proposed Action and Alternative 1

As described in “Assumptions,” ARB’s Scoping Plan includes measures that would indirectly address GHG emissions levels associated with construction activity, including the phasing in of cleaner technology for diesel engine fleets (including construction equipment) and the development of a Low Carbon Fuel Standard. Policies formulated under the mandate of AB 32 that are applicable to construction-related activity, either directly or indirectly, are assumed to be implemented during construction of the Proposed Action or Alternative 1 if those policies and laws are developed before construction begins. Therefore, it is assumed that project construction would not conflict with the Scoping Plan.

As discussed earlier, the draft Sacramento County CAP provides a framework for reducing GHG emissions and managing water and other resources to best prepare for a changing climate (Sacramento County 2009a). The CAP identifies additional ways the County could improve transportation, increase energy efficiency, promote renewable energy sources and conserve water resources. One of the objectives of the Proposed Action and Alternative 1 is to achieve a minimum of the (LEED®) Silver Rating. While various strategies can be used to achieve LEED Silver, the Proposed Action or Alternative 1 would, at a minimum, incorporate mandatory prerequisite measures that increase energy efficiency and conserve water resources, consistent with the Sacramento County CAP.

As discussed for the No-Action Alternative, DWR participates in a transportation incentive program and provides opportunities to reduce transportation for business activities. DWR activities under the Proposed Action and Alternative 1 would continue to implement these programs, which would reduce overall GHG emissions.

The Proposed Action and Alternative 1 would not conflict with the AB 32 Scoping Plan, the Sacramento County Phase 1 CAP, or any other plans, policies or regulations for the purpose of reducing GHG emissions. Neither the County nor any other agency with jurisdiction over this project has adopted climate change or GHG reduction measures with which the Proposed Action or Alternative 1 would conflict. This **direct** impact would be **less than significant**. **No indirect impacts** would occur.

Alternative 2

As described in "Assumptions" above, ARB's Scoping Plan includes measures that would indirectly address GHG emissions levels associated with construction activity, including the phasing in of more efficient technology for diesel engine fleets (including construction equipment) and the development of a Low Carbon Fuel Standard. Policies formulated under the mandate of AB 32 that are applicable to construction-related activity, either directly or indirectly, are assumed to be implemented during construction of Alternative 2 if those policies and laws are developed before construction begins. Therefore, it is reasonable to assume that project construction would not conflict with the Scoping Plan.

As discussed earlier, the draft Sacramento County CAP provides a framework for reducing GHG emissions and managing water and other resources to best prepare for a changing climate (Sacramento County 2009a). The CAP identifies additional ways the County could improve transportation, increase energy efficiency, promote renewable energy sources, and conserve water resources. One of the project objectives is to achieve a minimum of the (LEED®) Silver Rating. While various strategies can be used to achieve LEED Silver, Alternative 2 would incorporate measures that reduce VMT, increase energy efficiency, and conserve water resources, consistent with the Sacramento County CAP.

As discussed for the No-Action Alternative, DWR participates in a transportation incentive program and provides opportunities to reduce transportation for business activities. DWR activities under Alternative 2 would continue to implement these programs, which would reduce overall GHG emissions.

Alternative 2 would not conflict with the AB 32 Scoping Plan, the Sacramento County Phase 1 CAP, or any other plans, policies or regulations for the purpose of reducing GHG emissions. Neither the County nor any other agency with jurisdiction over this project has adopted climate change or GHG reduction measures with which Alternative 2 would conflict. This **direct** impact would be **less than significant**. **No indirect impacts** would occur.

Mitigation Measure: No mitigation is required.

Impact 3.4-3: Effects of Global Climate Change on Project Facilities and Operations

No-Action
Under the No-Action Alternative, no project facilities would be constructed and no additional operations would result. The level of significance of the impact of global climate change on the No-Action Alternative cannot be determined with certainty because the variability in climate change models makes it difficult to predict the repercussions of climate change in a specific geographic area. Changes and increased variability in climate may result in increased temperatures, which could have the potential to increase use of air conditioning, increasing costs and emissions. Conversely, increasing temperatures could reduce the use of electricity and natural gas for heating, which could offset increases during other times of the year. Effects on precipitation and snowpack would affect runoff and surface water, and would not affect the physical conditions of the existing site. The project facilities are also situated at elevations that would not be at or affected by a rising sea level. **No direct** or **indirect impacts** would occur.

Proposed Action, Alternative 1, and Alternative 2
The level of significance of the impact of global climate change on the Proposed Action, Alternative 1, or Alternative 2 cannot be determined with certainty because the variability in climate change models makes it difficult to predict the repercussions of climate change in a specific geographic area. However, an expected increase in the annual average temperature attributable to global climate change is projected to result in numerous effects on California, such as changes in precipitation patterns, snowpack, runoff, sea level rise, and water quality. Increased temperatures could result in either increased energy usage or energy savings, depending on the circumstances. Effects on precipitation and snowpack would affect runoff and surface water, and would not affect the physical conditions of the project site. None of the project sites are located within the DWR 100- or 200-year floodplain area or within the FEMA flood hazard area. Additionally none of the sites are situated at elevations that would be at or affected by a rising sea level. According to sea level rise maps developed by the U.S. Geological Survey, none of the sites would be at risk from projected increases in sea level over the next century (Cal/EPA 2011).

The Proposed Action, Alternative 1, or Alternative 2 would also incorporate measures required under EO 13514, EO S-20-04, AB 32, and the California Green Building Code to reduce energy and water consumption and use of other resources (described in “Assumptions—Project Features” above). In this way, the Proposed Action, Alternative 1, or Alternative 2 would be consistent with State plans to reduce GHG emissions and with the adaptation goals and objectives to protect California’s natural resources against the detrimental effects of climate change by implementing energy and water efficiency measures and reducing VMT. Therefore, the **direct** impact would be **less than significant**. **No indirect impacts** would occur.

Mitigation Measure: No mitigation is required.

Residual Significant Impacts

Because all project-related impacts would be less than significant, no residual impacts would result.

3.4.3 Cumulative Impacts

As described in Section 3.4.1, "Affected Environment," the analysis of GHG emissions is by definition a cumulative endeavor. Emission of GHGs has been determined to have a significant cumulative impact on the environment, resulting in global climate change, sea level rise (resulting in flooding of low-lying areas), effects on rainfall and snowfall (leading to changes in water supply and runoff), and effects on temperatures and habitats (affecting biological and agricultural resources). Impact 3.4-1 describes the contribution of all the alternatives to this significant cumulative impact and determines that none of these alternatives would make a cumulatively considerable incremental contribution to this significant cumulative impact.

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3.5 Cultural Resources

This report is not included as an appendix to the draft EIS/EIR because of the confidential nature of the resources being discussed; a copy of the report is on file at the Reclamation and DWR Sacramento offices. The analysis is based on the Cultural Resources Inventory and Evaluation Report for the JOC Relocation Project, prepared for Reclamation and DWR by AECOM in 2011. This report is not included as an appendix to the draft EIS/EIR because of the confidential nature of the resources being discussed; however, a copy of the report can be reviewed at the Reclamation and DWR Sacramento offices.

Cultural resources include prehistoric and historical districts, sites, buildings, structures, and objects and locations of importance to Native Americans. These resources can be found at many locations on the landscape and, along with prehistoric and historic human remains and associated grave-goods, must be considered under various Federal, State, and local regulations including NEPA, CEQA, and the National Historic Preservation Act of 1966 (NHPA).

Reclamation has determined that the area of potential effects (APE) for the project includes a 25.5-acre parcel (Proposed Site) and a 21.2-acre parcel (Alternative 1 Site). Construction and staging activities will be confined within the APE, and existing roads will be used for access. The Proposed Site is situated entirely on Reclamation lands, within tailings deposited from dredge mining the American River, in an unsectioned portion of the Rio de los Americanos Land Grant in T. 9 N., R. 7 E., Mount Diablo Meridian, as depicted on the Folsom 7.5’ U.S. Geological Survey (USGS) topographic quadrangle maps. This parcel is adjacent to the California Department of Fish and Game’s Nimbus Fish Hatchery, near Nimbus Dam, and the Upper Sunrise Recreation Area of the American River Parkway. Access to the Proposed Site is from U.S. Highway 50 (U.S. 50) via Hazel Avenue, Gold Country Boulevard, and Nimbus Road.

The Alternative 1 Site is situated on private land, within dredge mining tailings that have been completely bladed flat in an unsectioned portion of the Rio de los Americanos Land Grant in T. 9 N., R. 6 E., Mount Diablo Meridian, as depicted on the Carmichael 7.5’ USGS topographic quadrangle map. This parcel is industrial property located near the intersection of Kilgore Road and Crawford Drive in the city of Rancho Cordova.

3.5.1 Affected Environment

Environmental Setting

Cultural resources encountered in the Sacramento region are a result of human behaviors within, and adaptations to, the environment. To better understand the origin of these resources and the cultural and management issues implicit in their presence and discovery, they must be examined within a broad temporal, spatial, and cultural context. Only through a consideration of the broader cultural themes of the region can recorded

and presently undiscovered sites, features, and artifacts be evaluated for their significance and managed in accordance with the requirements of NEPA, CEQA, and the NHPA.

Prehistoric Context

Archaeological data has shown that humans have inhabited California for the past 10,000–12,000 years. Partly because of the varied topography and climate of the state, technological adaptations to these differing conditions vary greatly from region to region and over long periods of time. Prehistoric occupation in the Sacramento region can be analyzed according to the Central California Taxonomic System (CCTS), which was developed as a framework for comparing different archaeological sites in central California (Heizer 1949). This broad system has been refined as more information became available through archaeological excavations and explorations. New radiocarbon determinations adjusted with modern calibration curves are now used for a more precise time frame (Rosenthal et al. 2007:147–153). These different cultural patterns are characterized by:

- similar technological skills and devices (specific cultural items);
- similar economic modes (production, distribution, consumption), especially including participation in trade networks and practices surrounding wealth (often inferential); and
- similar mortuary and ceremonial practices.

The economic and cultural component of each pattern in varying geographic regions is determined according to the presence of stylistically different artifact assemblages. David A. Fredrickson argued that these temporal periods should be kept separate from the dating and definition of particular patterns, given the coexistence of more than one cultural pattern operating at any given point in time in California prehistory (Fredrickson 1974). This integrative framework provides the means for discussing temporally equivalent cultural patterns across a broad geographic space.

Ethnographic Context

The project area has been the traditional territory of the Nisenan, or Southern Maidu. The language of the Nisenan, which includes several dialects, is part of the Penutian linguistic stock (Wilson and Towne 1978:387). The western boundary of Nisenan territory was the Sacramento River, the eastern boundary was the crest of the Sierra Nevada, and the southern was the American River or as far as the Cosumnes River. The northern boundary is not clearly defined because of similarities in dialects but extends up to the Feather River.

Nisenan settlement locations depended primarily on elevation, exposure, and proximity to water and other resources. Permanent villages were usually located on low rises along major watercourses. Larger villages could have had populations in excess of 500 individuals, although small settlements consisting of 15 to 25 people and extended families were common (Kroeber 1925:831). Houses were domed structures covered with earth and tule or grass and measured 10 to 15 feet in diameter. Brush shelters were used

in summer and at temporary camps during food-gathering rounds. Larger villages often had semisubterranean dance houses that were covered in earth and tule or brush and had a central smoke hole at the top and an east-facing entrance. Another common village structure was a granary, which was used for storing acorns, and sweathouses, used for medicinal curing and purification (Beals 1933:344) (Wilson and Towne 1978:388).

Nisenan territory provided abundant and wide variety of food sources. Hunting and fishing went on year around, while the gathering of acorns, berries, nuts, wild onion, bulbs, fruits, and other food was on a seasonal basis. Grasshoppers, as well as larvae and pupae of ants and other insects, were consumed, often fresh or roasted (Beals 1933:346) (Wilson and Towne 1978:389–390).

Historic Context

Folsom Mining District The Folsom Mining District is California's second largest dredge field (Wells 2004:45). An early effort at dredging in Folsom occurred in 1894 when the Doan "grab dredger" attempted to work the American River south of Folsom near what is now the Proposed Site (Castaneda et al. 1984:168, Wells 2004:18). The "grabber" was steam powered and mounted on a scow. It lifted river-bottom gravels and deposited them in a screen and hopper from which they went through a sluice fitted with riffles. This effort was unsuccessful, as it was a method not well suited to gold recovery (Castañeda et al. 1984:168) and the machine was not heard of again beyond a brief mention in the 1894 report by the State Mineralogist (Crawford 1894).

The success of the Couch No. 1 dredge in the Oroville (Feather River) dredge field led immediately to prospecting in the Folsom area. In 1898, a Colorado mining syndicate, led by R. G. Hanford, began extensive testing, discovering early on that the ground around Folsom was generally much harder and compacted than around Oroville (Castañeda et al. 1984:168). It also became apparent that the majority of suitable dredging areas were south of the American River; only a few bars on the north bank, including Sacramento, Sailor, and Mississippi Bars, contained deposits worth exploiting.

Prospecting began on Mississippi Bar just 6 months after the Couch No.1 had begun its work. The idea for dredging this bar was to work the deeper gravels below the old tailings left by earlier hand-mining and ground-sluicing operations (Castañeda et al. 1984:169). Construction by the Risdon Iron Works of San Francisco began in January, 1899, financed by the Colorado-Pacific Gold Dredging Company. A 100-foot by 200-foot pit was excavated for the launch of the hull, and a boarding house was erected to house the construction workers (Castañeda et al. 1984:169) (AECOM 2009:27).

Six-hundred people attended the launch of the hull on February 11, 1899, at Mississippi Bar. Equipment installation on the hull followed, and the dredge began operation on April 17, 1899.

With the success of Pacific No. 1 on Mississippi Bar, prospecting increased all over the Folsom area. In June of 1899, the Ashburton Mining Company bought 100 acres on Sailor Bar and began dredging in March of 1900. Its digging capacity was almost twice

that of Pacific No. 1, and it was also the first dredge in Folsom to be powered by electricity.

Project Area Dredging

The third company to work in the Folsom area was the Syndicate Dredging Company, which began dredging in 1901 on Tate's Flat, near the present-day Nimbus Site. This was the first dredge on the south side of the American River. Its improvements included electric power, all-steel framing for the main drive, and heavier construction of working parts (Castañeda et al. 1984:172). The necessity for heavier, stronger dredges in Folsom was important because of the hard, cemented gravels in the region.

The Syndicate dredge was "constructed by the Risdon Iron Works [of San Francisco], was of the open-link-bucket elevator type, electrically driven, and equipped with 5-cubic-foot buckets" (Aubury 1910:178). Its chief stockholder was R.G. Hanford, who had led initial prospecting at Mississippi Bar with the Colorado-Pacific Gold Dredging Company. Hanford was one of the most important figures in early dredging operations in Folsom.

By 1903, Hanford had incorporated Folsom's first large dredging concern, the Folsom Development Company (Castañeda et al. 1984:173). In 1906, he formed the Natoma Development Company by consolidating properties of the Syndicate Dredging Company, the Colorado-Pacific Gold Dredging Company, and the Natoma Vineyard Company (Castañeda et al. 1984:179). And in 1909, together with W. P. Hammon, developer of Oroville's Couch No. 1 dredge, Hanford formed Natomas Consolidated of California (Castañeda et al. 1984:180). This company was formed by consolidating Hammon's and Hanford's dredging interests, both in Folsom and in Oroville; it was a culmination of Natomas development in the Folsom region, which was begun in 1851 (AECOM 2009:23).

In 1908, the Natoma Development Company commissioned three dredges to be built by the Yuba Construction Company of Marysville, California. Natoma No. 1 was the first of these, and it was that dredge that worked the ground of Tate's Flat, taking over from the Syndicate Dredging Company and starting its run in the old Syndicate pond (Aubury 1910:196). The Natoma Development Company was folded into Natomas Consolidated of California in 1909, and according to Natomas dredge progress maps, Natoma No. 1 worked the intact remnant identified in the project area in January of that year (Natomas Consolidated of California n.d.).

In 1910, Natoma No. 1 was the largest dredge operating in California (Aubury 1910:196). Put into commission on May 10, 1908, its hull was "112 feet long, 50 feet wide on water line, 11 feet 6 inches deep, with a draught of 8 feet 6 inches" (Aubury 1910:196). Its digging ladder carried 13.5-cubic-foot buckets and could dig up to 35 feet deep.

Proposed Site

The Proposed Site is located on the river bench known historically as Tate's (Tait's, Teat's) Flat. Like all land close to rivers and streams during the first decades of California's gold mining era, Tate's Flat was mined by placer methods. It also hosted the Tate's Flat ditch, which provided water to other area diggings.

Evidence of these placer workings is now absent, however, because the entire parcel was worked by bucket-line dredges in the early 20th century. The parcel was dredged by two early Folsom-area companies, the Syndicate Dredging Company and the Natoma Development Company, later Natomas Consolidated of California. Tailings in the area of the Proposed Site were created primarily by the Syndicate Dredging Company, with remnants of Natomas Consolidated operations in the east and southern periphery. The Syndicate tailings, dating to the first half of 1905, have been disturbed by rock removal and other impacts. One portion of the Natomas tailings—a 468-foot segment that dates to January, 1909—remains.

The history of gold mining in the Folsom region has been detailed in many sources (e.g., Barrows 1999, Davis 1890, Lindström 1988, Maniery et al. 1994). Recently, a historic context for mining along the lower American River was prepared for Reclamation ([EDAW]AECOM 2009). This context is immediately applicable to the current project, as the JOC project area is just across the river from Mississippi and Sailor Bars, the focus of the document. Much of the following is taken from that report, though the report itself should be consulted for a more detailed discussion.

The Proposed Site is located within the Folsom (or American River) Mining District, hereafter referred to as the Folsom Mining District, which was mined by placer methods from the earliest days of the Gold Rush in 1848 until 1962. This loosely defined district, which covers a discontinuous area of approximately 280 acres, has been given the trinomial CA-Sac-308H and contains a variety of recorded mining remains. CA-Sac-308H was determined to be eligible for listing on the NRHP in February 1990 and included abandoned water delivery systems, bedrock drains, prospect shafts, and piles of rock tailings associated with ground sluice operations (PAR Environmental Services, Inc. 1995). At the time CA-Sac-308H was determined to be eligible for listing on the NRHP, it comprised a smaller geographic area than its current recorded boundaries. Since its original recordation, several additional loci ([EDAW]AECOM 2003) have been assigned the trinomial CA-Sac-308H, although not all of these loci have been evaluated for contributing to the NRHP eligibility of the CA-Sac-308H.

Placer mining along the South Fork of the American River began in 1848 with the discovery of gold at Mormon Island. Gold pans, rockers, and other hand tools were used to separate free gold from river gravels, mostly from the gravel bars along the river's course. The Natoma Water and Mining Company completed a wide-ranging ditch system in 1853, expanding the area that could be exploited for its auriferous deposits and creating a second mining boom (Maniery 1992, Tordoff 2004). Placer mining in the Folsom region continued with variable intensity through the rest of the 19th century. Improving on original mining methods, use of the long tom and sluice quickly gave way to low-head hydraulicking and ground sluicing, plus various methodological combinations. Drift mining also was practiced in the region, requiring shafts and adits to reach rich pay streaks deep underground in ancient river gravels.

In 1899, the second successful bucket-line dredge in California inaugurated the dredge-mining industry in Folsom. There followed more than 60 years of dredging on more than 13,000 acres of land in the Folsom Mining District, mostly south of the American River.

The Natomas Company, the primary exploiter of district lands, dismantled its last dredge in 1962 (AECOM 2009:2).

Alternative 1 Site

The Alternative 1 Site is situated on land that was historically part of the Rancho Rio de los Americanos, which held more than 35,000 acres of land on the southern side of American River. The land grant was given to William A. Leidesdorff in 1844. Leidesdorff died before developing the land and Captain Joseph L. Folsom purchased the land from Leidesdorff's heirs (Kyle 1990:288). White Rock Road, which is just north of the Alternative 1 Site, was originally created in 1848 as a route between Sacramento and Placerville (AECOM 2011:3.9-2).

The Pony Express later used the route previously traveled by miners who were departing from Sacramento and heading for the Sierra Nevada foothills, along today's Folsom Boulevard. Several "way stations" appeared along this route through current-day Rancho Cordova. These stations were often named after proprietors or were indicative of their distance from Sacramento (e.g., Fifteen Mile House) (AECOM 2011:3.9-2).

Agriculture was the main industry in the region during the late 19th and the early 20th centuries. In fact, the city would later be named after the Cordova Vineyard, which was located in the center of the Rancho Rio de los Americanos land grant (Miller 1990). The land was used primarily for wheat cultivation or grazing until the 1920s (Peak & Associates 1999, 2005). By 1923, most of the surrounding area was owned by the Natomas Company. Gold dredging to depths of 80–110 feet took place over most of the Alternative 1 Site from 1915 to 1962, leaving behind huge piles of tailings that filled the dredge lines and rose substantially above the landscape (AECOM 2011:3.9-2 and 3).

The name "Rancho Cordova" was formally applied to the area currently known as the city of Rancho Cordova in 1955 when a post office was established. Efforts by local residents to formally establish a city continued over the next 40 years, until Rancho Cordova was incorporated by voter approval in July 2003. At that time, the newly appointed city included more than 55,000 residents (AECOM 2011:3.9-3).

Cultural Resources Inventory Methods and Results

A records search of pertinent cultural resource information was conducted at the North Central Information Center (NCIC) of the California Historical Resources Information System (CHRIS). In addition, Dr. Judy Tordoff, Ph.D., consulting historical archaeologist with over 40 years of experience, provided an aerial map dating from 1937. This information is provided in the Cultural Resources Inventory and Evaluation Report for the project (AECOM 2011).

The files maintained at the NCIC contain information on previously conducted archaeological investigations that occurred near both project areas. While no previously recorded sites have been identified and no previous studies have been conducted within either the Proposed Site or the Alternative 1 Site, the results of this records search indicates that four studies have been conducted within 0.5-mile of the Proposed Site and four studies within 0.5-mile of the Alternative 1 Site. (See the Cultural Resources

Inventory and Evaluation Report for the JOC Relocation Project, prepared for Reclamation and DWR by AECOM in 2011, for additional details.)

Studies near the Project Area

Of the four investigations conducted previously within 0.5 mile of the Proposed Site, three resulted in the identification of cultural resources. The first resource is part of the Pennsylvania Flat Diggings (CA-Sac-308H–LN-8). A portion of this resource, situated south of the Nimbus Fish Hatchery between Nimbus Road and the Jedediah Smith Memorial Trail, was recorded in 2002 by EDAW (now AECOM) (EDAW 2003). An additional portion of this resource, south of the trail and west of the Proposed Site, was identified by Phillips (1992). The third resource is located downstream of Nimbus Dam, on the south side of the American River, and consists of at least six bedrock mortars. There were no cultural resources noted within 0.5 mile of the Alternative 1 Site.

Native American Consultation

In addition to the NCIC record search, a letter of inquiry was sent to the Native American Heritage Commission (NAHC), asking for a review of the Sacred Lands files and for a list of individuals or groups with knowledge of areas of cultural sensitivity that may be located in the project area. The NAHC list includes Federally listed Native American tribes, as well as other Native Americans who may attach religious or cultural importance to locations in or near the project area. The response from the NAHC indicates that there are no cultural resources or areas of sensitivity on file within or in the vicinity of either the Proposed Site or the Alternative 1 Site. Written contact with the Native American groups provided by the NAHC received one response as of December 20, 2010, and follow-up phone calls were conducted to the remaining individuals. Two individuals were reached via telephone, and their only concern was that, if burials were discovered, all work should stop immediately. On January 13, 2011, a letter was received from the Shingle Springs Rancheria of Miwok Indians requesting to be added as a consulting party for the project.

Reclamation identified the United Auburn Indian Community of the Auburn Rancheria, Buena Vista Rancheria, Ione Band of Miwok Indians, and Shingle Springs Rancheria as tribes who might attach religious and cultural significance to historic properties within the APE pursuant to the regulations at 36 CFR 800.3(f)(2). Reclamation sent letters to these tribes on March 22, 2011, to invite their assistance in identifying sites of religious and cultural significance pursuant to 36 CFR Part 800.4(a)(4). The Todd Valley Miwok-Maidu Cultural Foundation and other individuals were identified by the NAHC as Indian tribes likely to have knowledge of historic properties in the area pursuant to the regulations at 36 CFR 800.4(a)(3). Reclamation sent letters to request their assistance in identifying historic properties that may be located within the APE. No responses have been received to date.

Field Methods

On December 10, 2010, an AECOM archaeologist, accompanied by Dr. Judy Tordoff, conducted an intensive pedestrian survey of the previously unsurveyed 25.5-acre Proposed Site and Nimbus Road, and on January 10, 2011, the same AECOM archaeologist conducted an intensive pedestrian survey of the previously unsurveyed

21.2-acre parcel of the Alternative 1 Site. Survey methods were consistent with the *Secretary of the Interior's Standards and Guidelines for Identification of Cultural Resources* (48 CFR 44720-23) and recordation of resources followed the guidelines outlined in *Instructions for Recording Historical Resources* (California Office of Historic Preservation 1995). The surface was examined for historic refuse such as bottles and bottle fragments, cutbone, and the remains of architectural materials. Although the majority of the Proposed Site has remnants of dredge tailings and five dredger ponds, the surface was also examined for evidence of prehistoric habitation or use such as flaked or ground stone and other types of artifacts, and midden soil. For the most part, the dredge tailings have been obliterated by quarrying activities. The Alternative 1 Site did not have any remaining dredge tailings but retained residual surface cobbles.

Results
As a result of the above investigations, an intact portion of one cultural resource, the American River Placer Mining District (CA-Sac-308H) was identified within the Proposed Site. The intact remains of the dredge tailings within the Proposed Site appear to be eligible as a contributing element of this district under criterion A of the National Register of Historic Places (NRHP) and Criterion 1 of the California Register of Historical Resources (CRHR). No cultural resources were identified within the Alternative 1 Site.

Regulatory Setting
Federal, State, and local government laws and regulations require consideration of significant cultural resources in project planning, approval, and implementation. As discussed below, the CEQA statutes and guidelines include procedures for identifying, analyzing, and addressing potential impacts on cultural resources. In addition to NEPA, CEQA, and state and local laws, projects requiring Federal funding, permitting, or approvals are also subject to Section 106 of the NHPA. The applicable Federal, State, regional and local plans, policies, regulations, and laws are outlined below.

Federal Plans, Policies, Regulations, and Laws Because the project would be funded in part by Reclamation, it is subject to the requirements of Section 106 of the NHPA of 1966 and its implementing regulations (36 Code of Federal Regulations [CFR] 800, as amended). For this project, the NEPA requirements mandating consideration of cultural resources will be coordinated with the Section 106 process in accordance with 36 CFR 800.8. Section 106 requires Federal agencies to consider the effects of their undertakings, or those they fund or permit, on properties that may be eligible for listing, or that are listed on the NRHP.

The following Federal laws related to biological resources are relevant to the project and are described in detail in Section 5.6, "Compliance with Related Laws, Rules, Regulations, and Executive Orders":

- National Historic Preservation Act
- National Register of Historic Places

State Plans, Policies, Regulations, and Laws CEQA provides a broad definition of what constitutes a cultural or historical resource. Cultural resources can include traces of prehistoric habitation and activities, historic-era sites and materials, and places used for traditional Native American observances or places with special cultural significance. In general, any trace of human activity over 50 years in age is required to be treated as a potential cultural resource.

CEQA states that if a project would have significant impacts on important cultural resources, then alternative plans or mitigation measures must be considered. However, only significant cultural resources (termed "historical resources") need to be addressed. The State CEQA Guidelines define a historical resource as "a resource listed or eligible for listing on the CRHR" (Public Resources Code Section 5024.1). A resource may be eligible for inclusion in the CRHR if it:

1) is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

2) is associated with the lives of persons important in our past;

3) 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

4) has yielded, or may be likely to yield, information important in prehistory or history.

The State CEQA Guidelines also require consideration of unique archaeological resources (Section 15064.5). As used in the Public Resource Code (PRC) (Section 21083.2), the term "unique archaeological resource" refers to an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1) contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information,

2) has a special and particular quality such as being the oldest of its type or the best available example of its type, or

3) is directly associated with a scientifically recognized important prehistoric or historic event or person.

In addition to meeting one or more of the above criteria, resources eligible for listing in the CRHR must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association (Office of Historic Preservation 1995: 69–70).

Executive Order W-26-92 (1992) This executive order requires State agencies to take specific measures to preserve significant State-owned properties and to administer historic properties under their control, regardless of ownership, in a spirit of stewardship. It directs all State agencies to recognize and, to the extent prudent and feasible, preserve and maintain the State's significant historical resources. General compliance with Executive Order W-26-92 is coordinated with compliance with PRC Section 5024.5, described above.

Regional and Local Plans, Policies, Regulations, and Ordinances The JOC Relocation Project is jointly proposed by Reclamation, a Federal agency, and DWR, a State agency. The Proposed Site is Federal property owned by Reclamation. A Federal agency operating on Federal land is not required to comply with regional or local plans, policies, regulations, or ordinances. However, a Federal agency normally will conform with local regulations and State laws that do not interfere with the agency's ability to "carry out the purposes of the government," such as building, health, and safety codes (Fort Leavenworth R.R. v. Lowe, 114 U.S. 525 [1885]).

Activities at the Proposed Site would not be required to comply with regional or local regulations, but Reclamation has committed to a "good neighbor" policy and would conform with those regulations to the extent that such compliance would not conflict with or hinder the mission and purposes of the agency or the departments located at the site. Activities at the Alternative 1 Site would take place on private property and would require full compliance with all regional and local regulations.

Sacramento County General Plan Objectives and policies from the *1993 County of Sacramento General Plan* (Sacramento County 1993) related to cultural resources that apply to the Proposed Action and alternatives under consideration are listed below:

Objectives:

1. Attention and care during project review and construction to ensure that cultural resource sites, either previously known or discovered on the project site, are properly protected with sensitivity to Native American values.

2. Structures with architectural or historical importance preserved to maintain exterior design elements.

3. Known archaeological and historic sites protected from vandalism unauthorized excavation, or accidental destruction.

4. Comprehensive knowledge of archeologic and historic site locations.

5. Properly stored and classified artifacts for ongoing study.

6. Public awareness and appreciation of both visible and intangible historic and cultural resources.

Policies:

- **CO-156.** Refer projects with identified archeological and cultural resources to the Cultural Resources Committee to determine significance of resource and recommend appropriate means of protection and mitigation. The Committee shall coordinate with the Native American Heritage Commission in developing recommendations.

- **CO-158**. Native American burial sites encountered during preapproved survey or during construction shall, whenever possible, remain in situ. Excavation and reburial shall occur when in situ preservation is not possible or when the archeological significance of the site merits excavation and recording procedure. On-site reinterment shall have priority. The project developer shall provide the burden of proof that off site reinterment is the only feasible alternative. Reinterment shall be the responsibility of local tribal representatives.

- **CO-159**. The cost of all excavation conducted prior to completion of the project shall be the responsibility of the project developer.

- **CO-160.** Monitor projects during construction to ensure crews follow proper reporting, safeguards, and procedures.

- **CO-161.** As a condition of approval of discretionary permits, a procedure shall be included to cover the potential discovery of archaeological resources during development or construction.

- **CO-162**. As a condition of approval for discretionary projects which are in areas of cultural resource sensitivity, the following procedure shall be included to cover the potential discovery of archeological resource during development or construction:

  Should any cultural resources, such as structural features, unusual amounts of bone or shell, artifacts, human remains, or architectural remains be encountered during any development activities, work shall be suspended and the Sacramento County Department of Environmental Review and Assessment shall be immediately notified. At that time, the Department of Environmental Review and Assessment will coordinate any necessary investigation of the site with appropriate specialists, as needed. The project proponent shall be required to implement any mitigation deemed necessary for the protection of the cultural resources. In addition, pursuant to Section 5097.98 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work is to stop and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains.

- **CO-167**. Restrict the circulation of cultural resource locational information to prevent potential site vandalism. This information is exempt from the “Freedom of Information Act”.

- **CO-168.** Cooperate with other agencies to enforce laws and aggressively prosecute illegal collection of artifacts.

- **CO-169**. Design and implement interpretive programs about known archeological or historical sites on public lands or in public facilities. Interpretation near or upon known sites should be undertaken only when adequate security is available to protect the site and its resources.

- **CO-170**. Provide historic and cultural interpretive displays, trails, programs, living history presentations, and public access to the preserved artifacts recovered from excavations.

Sacramento County General Plan Update Sacramento County is in the process of preparing a draft *Sacramento County General Plan Update* (Sacramento County 2010) and EIR to plan for growth in the period 2010–2030. Until that EIR has been certified and the update has been adopted by the Sacramento County Board of Supervisors, the 1993 general plan remains in effect. Following receipt of a third-party review in December 2010, hearings on the general plan began in spring 2011 and are ongoing.

City of Rancho Cordova General Plan Policies and actions from the *Rancho Cordova General Plan* (City of Rancho Cordova 2006) related to cultural resources that apply to Alternative 1 and the No-Action Alternative are listed below:

- **Policy CHR.1.2**—Establish and promote programs that identify, maintain, and protect buildings, sites, or other features of the landscape possessing historic or cultural significance.

  - **Action CHR.1.2.1**—Develop and regularly update a comprehensive historic resources inventory, coordinating with other agencies as necessary. The inventory will contain a list of all locally historically significant properties, as well as historic archaeological and paleontological resources in the Planning Area and a map depicting their locations.

  - **Action CHR.1.2.2**—Pursue recognition of all eligible historic properties by the National Register of Historic Places and California Register of Historical Resources.

- **Policy CHR.1.3**—Establish review procedures for development projects that recognize the history of the area in conjunction with State and Federal laws.

  - **Action CHR.1.3.1**—Require historic resources and paleontological studies (e.g., archaeological and historical investigations) for all applicable discretionary projects, in accordance with CEQA regulations. The studies should identify paleontological, historic, or cultural resources in the project area, determine their eligibility for inclusion in the California Register of Historical Resources, and provide mitigation measures for any resources in the project area that cannot be avoided.

- **Action CHR.1.3.2**—Incorporate the following two conditions in applicable permits for all discretionary projects.
  - The Planning Department shall be notified immediately if any cultural resources (e.g., prehistoric or historic artifacts) or paleontological resources (e.g., fossils) are uncovered during construction. All construction must stop in the vicinity of the find and an archaeologist that meets the Secretary of the Interior's Professional Qualifications Standards in prehistoric or historical archaeology or a paleontologist shall be retained to evaluate the finds and recommend appropriate action.
  - The Planning Department shall be notified immediately if any human remains are uncovered and all construction must stop in vicinity of the find. The Planning Division shall notify the County Coroner according to Section 7050.5 of California's Health and Safety Code. If the remains are determined to be Native American, the procedures outlined in CEQA Section 15064.5 (d) and (e) shall be followed.

3.5.2 Environmental Consequences and Mitigation Measures

The investigation to identify and evaluate the significance of cultural resources at the Proposed Site and the Alternative 1 Site resulted in the identification of one significant (as defined under CEQA) cultural resource (CA-Sac-308H), located at the Proposed Site. The tailings identified at the Proposed Site are the remains of the Syndicate dredge tailings, a portion of CA-Sac-308-H, which is also known as the Folsom Mining District. The Folsom Mining District was determined to be eligible for listing on the NRHP in 1990. No cultural resources were identified at the Alternative 1 Site.

In addition to the potential impacts related to known historic properties, there are also potential impacts associated with previously unidentified, buried archaeological resources within either the Proposed Site or the Alternative 1 Site. Although there appears to be a very low probability that intact buried archaeological remains are present at either the Proposed Site or the Alternative 1 Site because of extensive dredging and quarrying activities, there is always the possibility that previously undiscovered cultural resources and human remains could be unearthed during project construction activities.

Methods

The methods used to evaluate impacts on cultural resources resulting from implementation of the Proposed Action and alternatives included efforts to identify potentially significant cultural resources in the project APE (described in the introduction to this section), application of State and Federal criteria for determining the significance of identified cultural resources, and the application of Federal and State criteria for determining the significance of effects on cultural resources that have been found to be eligible for listing in the NRHP or CRHR.

Assumptions

As described in Chapter 2.0, "Alternatives," temporary fencing would be placed north of the mine tailings and oak woodlands at the south area of the Proposed Site during

construction. The fencing would provide an approximately 20-foot setback from sensitive areas in the southern portion of the Proposed Site. Motorized equipment would be restricted from the entering the fenced area. In the event that construction activities require the 20-foot setback to be decreased to not less than 10 feet, a qualified archaeologist and biologist would be consulted.

Criteria for Determining Significance of Effects

The Proposed Action and alternatives under consideration would be considered to have a significant impact related to cultural resources according to the applicability of Federal and State criteria below.

Federal According to 36 CFR 800.5, an undertaking would have an adverse effect on historic properties if the effect alters the characteristics that make a property eligible for inclusion in the NRHP. Adverse effects can occur when prehistoric or historic archaeological sites, structures, or objects listed in or eligible for listing in the NRHP are subjected to the following phenomena:

- Physical destruction of or damage to all or part of the property.
- Alteration of the property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties (36 CFR 68) and applicable guidelines;
- Removal of the property from its historic location.
- Change in the character of the property's use or of physical features within the property's setting that contribute to its historic significance.
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features.
- Neglect of the property that causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization.
- Transfer, lease, or sale of the property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

State CEQA defines a significant effect as one with the potential to cause a substantial adverse change in the significance of a historical resource or unique archaeological resource. Substantial adverse change in the significance of a resource means the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the resource would be materially impaired. The significance of a historical resource is materially impaired when a project results in demolition or material alteration in an adverse manner of those physical characteristics of a resource that:

- convey its historical significance and that justify its inclusion in, or eligibility for inclusion in, the CRHR;
- account for its inclusion in a local register of historical resources pursuant to PRC 5020.1(k) or its identification in a historical resources survey meeting the requirements of PRC 5024.1(g), unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
- convey its historical significance and that justify its eligibility for inclusion in the CRHR, as determined by a lead agency for purposes of CEQA.

Impact Analysis

See Table 3.0-2 for a summary of impacts and mitigation measures for Alternative 2 (incorporated by reference from the Mather Field Specific Plan FEIR).

Impact 3.5-1: Potential Damage to or Destruction of Known Cultural Resources

No-Action
Under the No-Action Alternative, no construction activities would occur; therefore, the project would not affect historic properties. **No direct or indirect impact** would occur.

Proposed Action
One previously unrecorded cultural resource, CA-Sac-308H (historical dredge tailings), was documented at the Proposed Site during the research and inventory phases of this project. This resource has been recommended as eligible for listing on the NRHP and the CRHR, and thus is considered to be a historic property or significant cultural resource, respectively. Under the Proposed Action, this resource would not be damaged or destroyed and therefore there would be no adverse effects to historic properties or significant cultural resources. The historical setting of the Proposed Site has been substantially compromised as a result of destruction of surrounding tailings, construction of an adjacent housing development, and other modern development and construction. Therefore, with the introduction of new buildings and other features, the Proposed Action would not substantially alter the existing setting of the tailings and would not result in indirect impacts on the historic property. In addition, the establishment of construction fencing and an approximately 20-foot setback from CA-Sac-308H would provide additional protection for this historic property during construction. This **direct** impact would be **less than significant**. **No indirect impact** would occur.

Alternative 1
No cultural resources were identified at the Alternative 1 Site; therefore, no known cultural resources would be affected by construction or operations. **No direct or indirect impact** would occur.

Mitigation Measure: No mitigation is required.

Impact 3.5-2: Potential Damage to or Destruction of Buried Archaeological Sites and Human Remains

No-Action
Under the No-Action Alternative, no construction activities would occur; therefore, the project would not affect historic properties. **No direct or indirect impact** would occur.

Proposed Action and Alternative 1
Although no archaeological resources were identified at either the Proposed Site or the Alternative 1 Site, construction and other ground-disturbing activities associated with the project have the potential to disturb buried, as-yet-undiscovered archaeological sites and human remains. Under NEPA, CEQA, and Section 106 of the NHPA, damage to or destruction of significant or potentially significant buried archaeological remains during construction would be considered a direct impact. This **direct** impact would be **significant**. **No indirect impact** would occur.

Mitigation Measure 3.5-2a: Protect Archaeological Remains by Stopping Work If Archaeological Materials Are Discovered During Ground-Disturbing Activities

No-Action
No mitigation is required.

Proposed Action and Alternative 1
If archaeological materials (such as chipped or ground stone, historic debris, building foundations, or nonhuman bone) are inadvertently discovered during ground-disturbing activities, the construction contractor will notify Reclamation and DWR cultural resources staff and will stop work in that area and within 100 feet of the find until a qualified archaeologist can assess the significance of the find and develop appropriate treatment measures in consultation with Reclamation and DWR and SHPO. Treatment measures typically include development of avoidance strategies or mitigation of impacts through data recovery programs such as excavation or detailed documentation.

If cultural resources are discovered during construction activities, the construction contractor and building inspector will verify that work is halted until appropriate treatment measures are implemented in consultation with Reclamation, DWR, and SHPO. Work will not continue until Reclamation issues a notice to proceed.

Responsibility: Reclamation and DWR

Timing: During construction

Mitigation Measure 3.5-2b: Protect Human Remains by Stopping Work If Human Remains Are Discovered during Construction

No-Action
No mitigation is required.

Proposed Action
If human remains are found on lands owned by the Federal government within the APE as a result of project-related ground-disturbing activities, they must be treated in accordance with the provisions of Native American Graves Protection and Repatriation (NAGPA) (25 USC 3001 et seq.). The NAGPRA requires Federal agencies and certain recipients of Federal funds to document Native American human remains and cultural items within their collections, notify native groups of their holdings, and provide an opportunity for repatriation of these materials. NAGPA also requires planning for dealing with potential future collections of Native American human remains and associated funerary objects, sacred objects, and objects of cultural patrimony.

NAGPRA regulations (Pub.L. 101-60125 USC 30013013) develop a systematic process for determining the rights of lineal descendants and Indian tribes and Native Hawaiian organizations to certain Native American human remains, funerary objects, sacred objects, or objects of cultural patrimony with which they are affiliated. These regulations pertain to the identification and appropriate disposition of human remains, funerary objects, sacred objects, or objects of cultural patrimony that are:

(i) In Federal possession or control; or

(ii) In the possession or control of any institution or State or local government receiving Federal funds; or

(iii) Excavated intentionally or discovered inadvertently on Federal or tribal lands.

These regulations apply to human remains, funerary objects, sacred objects, or objects of cultural patrimony which are indigenous to Alaska, Hawaii, and the continental United States, but not to territories of the United States. Throughout these regulations are decision points which determine their applicability in particular circumstances, e.g., a decision as to whether a museum “controls” human remains and cultural objects within the meaning of the regulations, or, a decision as to whether an object is a “human remain,” “funerary object,” “sacred object,” or “object of cultural patrimony” within the meaning of the regulations. Any final determination making the Act or these regulations inapplicable is subject to review pursuant to section 15 of the Act.

Alternative 1
If human remains of Native American origin are discovered on non-Federal lands during ground-disturbing activities, it is necessary for the agencies responsible for project implementation to comply with State laws relating to the disposition of Native American burials, which fall within the jurisdiction of NAHC (PRC 5097).

If human remains are discovered or recognized in any location other than a dedicated cemetery, the agencies responsible for project implementation will not allow further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:

- the County Coroner has been informed and has determined that no investigation of the cause of death is required; and
- if the remains are of Native American origin,
- the descendants of the deceased Native Americans have made a recommendation to the landowner or the person responsible for the excavation work for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in PRC 5097.98, or
- the NAHC was unable to identify a descendant or the descendant failed to make a recommendation within 24 hours after being notified by the NAHC.

Responsibility: Reclamation and DWR

Timing: During construction

Implementing Mitigation Measures 3.5-2a and 3.5-2b would protect archaeological remains and human remains, respectively, by requiring that work stop if either are inadvertently or accidentally discovered during project construction. Reclamation and DWR cultural resources staff will be notified, and will determine the appropriate treatment of the resource in consultation with SHPO and in accordance with the applicable Federal and State laws and regulations as described above. Therefore, this impact associated with temporary construction activities would be reduced to a **less-than-significant** level.

Residual Significant Impacts

With implementation of mitigation measures identified in this cultural resources section, all project-related impacts would be reduced to a less-than-significant level. Therefore, no residual significant impacts would occur.

3.5.3 Cumulative Impacts

Because there would be no impacts on historic properties or significant cultural resources pursuant to NHPA and CEQA, respectively, from implementation of either the Proposed Action or Alternative 1, there would be no cumulative impact to cultural resources when considered in conjunction with other planned or foreseeable projects.

3.6 Earth and Paleontological Resources

This section evaluates impacts of the Proposed Action and alternatives under consideration with regard to geology, soils, seismicity, mineral resources, and paleontological resources.

3.6.1 Affected Environment

Environmental Setting

Regional Geology The Proposed Site and the Alternative 1 Site are located at the south end of the Sacramento Valley within the Great Valley Geomorphic Province (Great Valley). The Great Valley is bounded by the Sierra Nevada to the east, the Coast Ranges to the west, the Transverse Ranges to the south, and the Klamath Mountains to the north. The Great Valley is underlain by a thick sequence of Jurassic- through Holocene-age sedimentary deposits. The eastern portion of the Great Valley is overlain by Pleistocene- and Plio-Pleistocene–age (Tertiary) ancestral American River deposits and Miocene- to Pliocene- (Tertiary-) age Lahar (volcanic mudflow) deposits. The ancestral American River deposits occur as alluvial fan sediments.

Local Geology The Proposed and Alternative 1 Sites are undeveloped and covered with piles of dredge tailings up to 30 feet above the pre-mining ground surface. The Proposed Site is situated on a terrace located near the south bank of the American River. On the U.S. Geological Survey (USGS) 7.5-minute series topographic map (Folsom, California Quadrangle), the elevation at the Proposed Site ranges from approximately 120 to 140 feet above mean sea level (msl). The surface topography of the Proposed Site varies greatly due to the massive piles of dredge tailings, but generally slopes to the northwest toward the American River. The ground surface over much of the Proposed Site consists of piles of dredge tailings composed of gravel and cobbles. These piles have been graded to a relatively flat surface over the middle portion of the site. The Alternative 1 Site is located in the USGS 7.5-minute series topographic map (Carmichael, California Quadrangle) with an elevation of approximately 114–126 feet above msl. The surface topography of the Alternative 1 Site is relatively flat, with some piles of dredge tailings, and a very gradual slope to the west. The dredge tailings range up to a maximum of about 45 feet thick locally, but are generally less than 25 to 30 feet thick at the Proposed and Alternative 1 Sites.

Based on geologic reports prepared by Reclamation, the Proposed Site consists of Recent (i.e., 11,000 years or younger [Holocene age]) American River alluvial deposits, ancestral American River terrace deposits, and older Tertiary deposits (Piper et al. 1939, Marchand and Allwardt 1981). The Recent American River alluvial deposits (near the Proposed Site) consist of sands and gravels that are located immediately adjacent to, and in the stream bed of, the American River. Before dredge mining of the Proposed Site, in addition to Holocene alluvium, the site consisted of Pleistocene-age Victor Formation and Plio-Pleistocene–age Laguna Formation deposits that overlaid the Miocene-Pliocene–age Mehrten Formation. The Alternative 1 Site consists of ancestral American

River terrace deposits and older Tertiary deposits. Before dredge mining of the Alternative 1 Site, the Victor and Laguna Formations were present and overlaid the Mehrten Formation. At both sites, the Victor Formation existed as terrace deposits consisting of auriferous sands and gravels deposited by the ancestral American River.

Locally at both sites, the Laguna Formation was present underneath the Victor Formation and consisted primarily of auriferous gravelly deposits associated with ancestral American River deposition. The dredge mining at the two sites (for placer gold) targeted the Holocene American River deposits and these two terraces deposits (Victor and Laguna Formations), such that most of these formations have been completely mined; therefore, they no longer occur in the subsurface of the Proposed or Alternative 1 Sites except as occasional thin lenses missed by the dredge mining. The Mehrten Formation underlies most of the dredge tailings in the Nimbus Dam/Nimbus Fish Hatchery area, along Folsom South Canal, and at both the Proposed and Alternative 1 Sites. The Mehrten Formation also forms the steep bluffs that can be seen on the north side of the American River across from the Proposed Site. Locally, the Mehrten Formation consists predominantly of weakly to strongly cemented, fine- to medium-grained andesitic sandstone. Occasionally within the Mehrten Formation, there are lenticular deposits of weakly to strongly cemented, well rounded, andesitic boulders, cobbles, and gravels in a fine- to medium-grained andesitic silty sand (volcanic ash) matrix. The Mehrten Formation is a thick deposit consisting predominantly of lehar deposits with occasional beds of volcanic ash.

Piper et al. (1939) were the first to publish detailed geologic maps in the southern Sacramento/northern San Joaquin Valley areas, and they designated the older alluvial Pleistocene deposits as the Victor Formation. However, in 1959, Davis and Hall proposed a subdivision of the Victor Formation into the Turlock Lake (oldest), Riverbank (middle), and Modesto (youngest) Formations. The type section of the Modesto Formation was designated along the south bluff of the Tuolumne River south of Modesto. Marchand and Allwardt (1981) also proposed that the name Victor Formation be abandoned and that the Turlock Lake, Riverbank, and Modesto Formations be adopted as formal nomenclature for Quaternary deposits in the Sacramento and San Joaquin Valleys. At the Proposed and Alternative 1 Sites, the Victor Formation likely consisted of the Riverbank and Modesto Formations.

Regional Seismicity and Fault Zones

Surface Fault Rupture Surface rupture is an actual cracking or breaking of the ground along a fault during an earthquake. Structures built over a fault can be torn apart if the ground ruptures. Surface ground rupture along faults is generally limited to a linear zone a few yards wide. The Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) (see “Regulatory Setting,” below) was created to prohibit structures designed for human occupancy from being located across the traces of active faults, thereby reducing the loss of life and property from an earthquake. The Proposed and Alternative 1 Sites are not located in an Alquist-Priolo Earthquake Fault Zone (Hart and Bryant 2007). The nearest fault zoned under the Alquist-Priolo Act is the northern segment of the Cleveland Hills Fault, located near Lake Oroville, approximately 50 miles north of the Proposed and Alternative 1 Sites.

Seismic Ground Shaking Ground shaking, motion that occurs as a result of energy released during faulting, could potentially result in the damage or collapse of buildings and other structures, depending on the magnitude of the earthquake, the location of the epicenter, and the character and duration of the ground motion. Other important factors to consider are the characteristics of the underlying soil and rock and, where structures exist, the building materials used and the workmanship of the structures.

Faults in the Project Region The West Branch of the Bear Mountains Fault, within the Foothills Fault system, is located approximately 5 miles east of the Proposed and Alternative 1 Sites; however, Jennings (1994) does not indicate that fault activity has occurred within the last 11,000 years, and the slip rate of the Foothills Fault system is extremely low (0.05 millimeters per year), which is well below the planning threshold for major earthquakes (USGS 2000). With the exception of the Dunnigan Hills Fault, located in the Woodland area, the Sacramento Valley has generally not been seismically active in the last 11,000 years (Holocene time). Faults with known or estimated activity during the Holocene are generally located in the San Francisco Bay Area to the west, or in the Lake Tahoe area to the east, as shown in Table 3.6-1.

Table 3.6-1
Faults with Evidence of Activity during Holocene Time in the Project Region

Fault Name	Approximate Distance from Project Sites (miles)	Fault Type[1]	Maximum Moment Magnitude[2]	Regional Location
Dunnigan Hills	40	NA	NA	Western Sacramento Valley
Cleveland Hills/Swain Ravine	50	NA	6.5	Sierra Nevada Foothills
Great Valley Fault Zone Segment 4	60	B	6.6	Margin between Sacramento Valley and Coast Range
Great Valley Fault Zone Segment 5	65	B	6.5	Margin between Sacramento Valley and Coast Range
Green Valley	65	B	6.2	Coast Range
Greenville Fault Zone (includes Clayton and Marsh Creek sections)	65	B	6.6	Coast Range
Concord	70	B	6.2	Coast Range
West Tahoe/Dollar Point Fault Zone	60	NA	7.2	Lake Tahoe
North Tahoe/Incline Village Fault Zone	60	B	7.0	Lake Tahoe

Notes: NA = not available or not known

[1] Faults with an "A" classification are capable of producing large magnitude (M) events (M greater than 7.0), have a high rate of seismic activity (e.g., slip rates greater than 5 millimeters per year), and have well-constrained paleoseismic data (e.g., evidence of displacement within the last 700,000 years). Class "B" faults are those that lack paleoseismic data necessary to constrain the recurrence intervals of large-scale events. Faults with a "B" classification are capable of producing an event of M 6.5 or greater.

[2] The moment magnitude scale is used by seismologists to compare the energy released by earthquakes. Unlike other magnitude scales, it does not saturate at the upper end, meaning that no particular value exists beyond which all earthquakes have about the same magnitude, which makes this scale a particularly valuable tool for assessing large earthquakes.

Sources: Cao et al. 2003; Jennings 1994; Mualchin 1996; Petersen et al. 1996; Ichinose et al. 1999; data compiled by AECOM in 2011

Historical Seismicity The southern portion of the Sacramento Valley is generally not seismically active. According to the *Draft Environmental Impact Report for the Rancho Cordova General Plan* (City of Rancho Cordova 2006a), accurate seismic activity records for Sacramento County have been kept for the past 150 years. These records indicate that significant regional seismic activity was recorded in 1869, 1892, 1954, and 1966. Records indicate that the 1869, 1954, and 1966 earthquake events were centered in western Nevada and did not result in ground shaking or structural damage in the Sacramento area. In 1892, an earthquake measuring VI on the Modified Mercalli Scale occurred in the Vacaville and Winters areas and resulted in structural damage in downtown Sacramento. Damage included toppled chimneys, cracked plaster, and moderate masonry damage on several buildings. Other than the 1892 earthquake, no seismic activity of significant magnitude in Sacramento County has resulted in structural damage or human-related injuries or deaths. According to the map of earthquake-shaking potential for California, the Rancho Cordova area is distant from known, active faults and will experience lower levels of shaking less frequently. In most earthquakes, only weaker, masonry buildings would be damaged. However, very infrequent earthquakes could still cause strong shaking.

Liquefaction/Ground Failure Soil liquefaction occurs when ground shaking from an earthquake causes a sediment layer saturated with groundwater to lose strength and take on the characteristics of a fluid, thus becoming similar to quicksand. Factors determining the liquefaction potential are soil type, the level and duration of seismic ground motions, the type and consistency of soils, and the depth to groundwater. Loose sands, peat deposits, and Holocene-age alluvium are susceptible to liquefaction, while clayey silts, silty clays, and clays deposited in freshwater environments are generally stable under the influence of seismic ground shaking.

Liquefaction poses a hazard to engineered structures. The loss of soil strength can result in bearing capacity insufficient to support foundation loads, increased lateral pressure on retaining or basement walls, and slope instability.

The Proposed and Alternative 1 Sites are covered with piles of cobbles left over from dredger mining activities. In addition to the cobbles, both sites also are covered with sand and silt deposits, called “slickens,” also left over from mining activities. These deposits are extremely unstable, and the depth to groundwater in the area in likely 25–40 feet deep. Therefore, a potential for liquefaction to occur exists during a large magnitude earthquake.

Seismic Seiches A seiche is a sloshing of water in an enclosed or restricted water body, such as a basin, river, or lake, caused by earthquake motion. Seiches are a concern for low-lying sites close to the California coastline or near large lakes and reservoirs. An 1868 earthquake along the Hayward Fault in the San Francisco Bay Area generated a seiche along the Sacramento River that affected the Sacramento–San Joaquin Delta. Levees were subject to overtopping and subsequent failure. Based on the low expected peak ground acceleration for the Proposed Site (0.17 in alluvium) (CGS 2011), the risk of a seiche along the American River affecting the Proposed Site is minimal. The

Alternative 1 Site is far enough from the American River such that no effects would occur.

Subsidence and Settlement Subsidence is the gradual settling or sinking of surface soil deposits with little or no horizontal motion. Both the Proposed and Alternative 1 Sites are covered with piles of cobbles, in some cases up to 30 feet high, left over from dredger mining activities. In addition to the cobbles, both sites are covered with sand and silt deposits, called "slickens," left over from mining activities. Both the cobbles and the slickens are known to present challenges when constructing building foundations in the Rancho Cordova area because of the tendency of the cobbles and slickens to settle and subside, thereby resulting in substantial structural damage unless specific engineering designs are incorporated, such as pier foundations that are drilled below the cobbles and into the underlying stable formations. Depending on the depth of the mining deposits on the Proposed and Alternative 1 Sites, piers could have to be drilled 45 to 65 feet below the ground surface.

Landslide Potential Landslides, which on the Proposed and Alternative 1 Sites include debris flows and rockfalls, tend to occur in weak soil and rock on sloping terrain. Earthquake-induced landslides may occur when weak materials are shaken by an earthquake. The topography of the Alternative 1 Site and the surrounding area is flat and thus has minimal potential for landslides. The topography of the Proposed Site is irregular, with some steep-sided piles of dredge tailings with gravel and cobbles lying at their angle of repose. The surrounding area is relatively flat. Other than potential for minor sloughing of gravel or cobbles, the potential for landslides is considered low.

Soils Table 3.6-2 summarizes the soil types at the Proposed and Alternative 1 Sites based on a review of U.S. Department of Agriculture soil survey data.

The surface soils at the Proposed Site are identified as Xerorthents, dredge tailings, with 2% to 50% slopes (Exhibit 3.6-1). Xerorthents are defined as being primarily composed of mine spoils or earthy fill and having a very high transmissivity and low available water capacity, with somewhat excessive drainage. Xerorthents soils have a very low shrink-swell potential and are not corrosive to concrete and steel. The frequency of flooding of these soils is very low. Shallow groundwater at the Proposed Site is approximately at an elevation near the water level of the American River, about 81 to 82 feet above msl, or 40 feet below ground surface (bgs). However, shallow groundwater levels may fluctuate as a result of variations in rainfall, temperature, irrigation, or other factors, and temporary perched groundwater may also occur during the rainy season.

The upper 20–30 feet of the subsurface at the Alternative 1 Site is primarily composed of dredge tailings, which are underlain by 20–30 feet of fine-grained soils, which is then underlain by coarse-grained soils (Exhibit 3.6-2). The surface soils at the Alternative 1 Site are defined as Xerorthents, dredge tailings. The northernmost 20% of the Alternative 1 Site has 0% to 2% slopes and the southernmost 80% of this site has 2% to 50% slopes. Xerorthents are defined as being primarily composed of mine spoils or earthy fill, and having a very high transmissivity and low available water capacity, with somewhat

Table 3.6-2
Soil Mapping Unit Descriptions

Soil Series Name	USDA Texture	Shrink-Swell Potential	Permeability (in/hr)	Drainage	Erosion Hazard	Erosion Factors[1]			Land Capability[2]	pH	Plasticity Index[3]
						Kw	Kf	T			
Xerorthents, dredge tailings— 2% – 50% slopes	variable	Gravel and cobbles	—	High to very high (5.95 to 19.98)	None	—	—	—	VIIIs Nonirrigated	—	—
Xerorthents, dredge tailings-Urban land complex, 0% to 2% slopes	variable	Gravel and cobbles	—	High to very high (5.95 to 19.98)	None	—	—	—	VIIIs Nonirrigated	—	—

Notes: in/hr = inches per hour, – = either not measured or not applicable

[1] Ranges of numbers within this column correspond to erosion at the surface to the soil profile's depth. Erosion factors are defined as follows:

- Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.
- Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.
- Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind and/or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

[2] Land capability is an indication of the suitability of soils for most kinds of field crops. Land capability classes are I through VIII, with VIII being unsuitable for most crop production. Subclasses denoting limiting factors are designated by letters e (erosion), w (water), s (shallow or stony), or c (climate).

[3] Soils with a high plasticity index have a wide range of moisture content in which the soil performs as a plastic material. Larger PI values (e.g., 20–40) indicate highly plastic soils.

Salinity is not a factor in any of the soils listed above.

Source: U.S. Department of Agriculture 2010

excessive drainage. Xerorthents soils have a very low shrink-swell potential and are not corrosive to concrete and steel. The frequency of flooding of these soils is noted as very low. The depth to the first-encountered groundwater at the Alternative 1 Site is approximately 25 feet bgs and is likely a result of surface infiltration of water from seasonal rain events, which becomes perched on the fine-grained soils underlying the dredge tailings.

Mineral Resources Under the California Surface Mining and Reclamation Act (SMARA), the State Mining and Geology Board may designate certain mineral deposits as being regionally significant to satisfy future needs. The board's decision to designate an area is based on a classification report prepared by the California Geological Survey (CGS) and on input from agencies and the public. The Proposed and Alternative 1 Sites both lie within the designated Sacramento-Fairfield Production-Consumption Region for Portland cement concrete aggregate, which includes all designated lands within the marketing area of the active aggregate operations supplying the Sacramento-Fairfield urban center.

In compliance with SMARA, the California Division of Mines and Geology (CDMG) established the classification system shown in Table 3.6-3 to denote both the location and significance of key extractive resources. The classification process is based solely on geology, without regard to existing land use or land ownership. The purpose of this classification is to help ensure that the mineral resource potential of land is recognized and considered in the land use planning process.

Table 3.6-3
California Division of Mines and Geology Mineral Land Classification System

Classification	Description
MRZ-1	Areas where adequate information indicates that no significant mineral deposits are present or where it is judged that little likelihood exists for their presence
MRZ-2	Areas where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood for their presence exists
MRZ-3	Areas containing mineral deposits, the significance of which cannot be evaluated from existing data
MRZ-4	Areas where available data are inadequate for placement in any other mineral resource zone

Note: MRZ = Mineral Resource Zone
Source: Dupras 1999

Both the Proposed and Alternative 1 Sites are located adjacent to an ancient channel of the American River. Over many thousands of years, weathering eroded various auriferous (gold-bearing) formations in the Sierra Nevada, thus allowing gold flakes, nuggets, and gold-bearing rocks to be carried along in glacial meltwater and in river channels. Depending on the volume of water and the rate of flow, the gold was eventually deposited on the surfaces of ancient river channels. Auriferous rocks eventually became deposited at the mouths of rivers as alluvial fans. Areas around Folsom, Prairie City, and

Source: NRCS 2010a

Exhibit 3.6-1 Soil Types at the Proposed Site

Source: NRCS 2010b

Exhibit 3.6-2 Soil Types at the Alternative 1 Site

Rancho Cordova, where the American River emptied into the Sacramento Valley, eventually became well-known locations for gold miners. Sand and gravel mined in Sacramento County and Rancho Cordova is used for construction. Construction aggregates are an important building material used in Portland cement concrete, asphalt concrete, plaster, and stucco and as a road base material. In terms of volume and price, no economically feasible substitute exists for aggregate products in the construction industry. However, the *1993 County of Sacramento General Plan* also includes recognition that aggregate mining is an interim land use rather than a final use and recognizes the importance of balancing aggregate-mining needs with those of urban development.

The Proposed and Alternative 1 Sites are both classified as MRZ-2—areas where adequate information indicates that significant mineral deposits are present or where a high likelihood for their presence is judged to exist (Dupras 1999). The State Mining and Geology Board (SMGB) may choose to further subdivide the MRZ-2 classification into MRZ-2a and MRZ-2b classifications, the -2a classification indicating areas where PCC-grade aggregate is currently being mined. The State Geologist (i.e., the California Division of Mines and Geology [CDMG]) may then choose to use this information when carrying out mineral resource classifications. Some areas may be designated by SMGB and CDMG as Aggregate Resource Areas (ARAs). These are areas that have been classified as MRZ-2a or MRZ-2b for Portland cement concrete (PCC)-grade aggregate by the State Geologist and that are deemed to be available for mining based on the board's criteria for compatibility (SMGB/CDMG 2000). The purpose of determining ARAs is to provide a semi-quantified estimate of the amount of construction aggregate that is likely to be available during the 50-year time period following the date of classification.

Neither the Proposed Site nor the Alternative 1 Site have been subdivided into MRZ-2a or MRZ-2b subclasses and therefore are not located within areas that have been designated by CDMG as an ARA. There are no existing mining operations within the vicinity of the Proposed Site. In 1999, there was an existing mining operation (RMC Pacific Materials) approximately one-quarter mile south of the Alternative 1 Site that was classified as MRZ-2a and was designated as an ARA by CDMG. However, RMC Pacific Materials has since been purchased by Cemex and it was not possible to determine during preparation of this document whether or not that particular location (south of the Alternative 1 Site) is still in operation. Furthermore, Sacramento County determined that the ARA designation for that former RMC Pacific Materials location was inappropriate because it would conflict with existing plans, easements, and preservation areas (Sacramento County 2010:18). The SMGB/CDMG use a specific methodology for determining which MRZ-2a and MRZ-2b subareas are suitable for designation as ARAs, and which subareas should be excluded from designation as ARAs, as detailed in *California Surface Mining and Reclamation Policies and Procedures, Guidelines for Classification and Designation of Mineral Resources* (SMGB/CDMG 2000). MRZ-2a and MRZ-2b locations that are excluded from ARAs are considered generally incompatible with mining based on the following two categories:

(I) Economic Exclusion, because the mineral resource is located is in a residential area, is located in a commercial or industrial area with buildings, the mineral resource location

includes a major public or private engineering project (such as a dam, canal, freeway, railroad, etc.), or the mineral resource is located in a small area isolated by urbanization (generally less than 40 acres).

(II) Social Exclusion, because the mineral resource is located in a cemetery, public park (including historical structures), public recreation areas of all types, schools, institutions, hospitals, prisons, or military bases.

The DEIR for the draft Sacramento County General Plan Update (Sacramento County 2010) proposes to designate several locations in the County as local Mineral Resource Areas, considering both the CDMG classifications and local land use planning; neither the Proposed Site nor the Alternative 1 Site are located within one of these locally designated Mineral Resources Areas.

Paleontological Resources

Paleontological Resource Inventory Methods Published and unpublished geological and paleontological literature were reviewed to document the number and locations and previously recorded fossil sites from rock units exposed in and near the Proposed and Alternative 1 Sites and the types of fossil remains each rock unit has produced. The literature review was supplemented by an archival search conducted at the University of California Museum of Paleontology (UCMP) in Berkeley, California, on January 25, 2011.

Paleontological Resource Field Survey The ground surface at the Proposed Site was obscured by piles of cobbles from historic dredger mining activities; the ground surface at the Alternative 1 Site was obscured by vegetation and cobbles.

Paleontological Resource Assessment Criteria The potential paleontological importance of a project site can be assessed by identifying the paleontological importance of exposed rock units within the site. Because the areal distribution of a rock unit can be easily delineated on a topographic map, this method is conducive to delineating parts of a project site that are of higher and lower sensitivity for paleontological resources and to delineating parts of a site that may require monitoring during construction.

A paleontologically important rock unit is one that: 1) has a high potential paleontological productivity rating, and 2) is known to have produced unique, scientifically important fossils. The potential paleontological productivity rating of a rock unit exposed at the project site refers to the abundance/densities of fossil specimens and/or previously recorded fossil sites in exposures of the unit in and near the project site. Exposures of a specific rock unit at the project site are most likely to yield fossil remains representing particular species in quantities or densities similar to those previously recorded from the unit in and near a specific project site.

The following tasks were completed to establish the paleontological importance of each rock unit exposed at or near the Proposed and Alternative 1 Sites.

- The potential paleontological productivity of each rock unit was assessed, based on the density of fossil remains previously documented within the rock unit.

- The potential for a rock unit exposed at either site to contain a unique paleontological resource was considered.

Results of Paleontological Resource Inventory Search Based on a record search conducted at UCMP (2011), no fossil localities have been recorded within or adjacent to either the Proposed Site or the Alternative 1 Site.

Paleontological Resource Assessment by Rock Unit

Dredge Tailings Dredge tailings consist of deposits from mining activities that took place over the last 160 years. The deposits consist primarily of cobbles from dredger mining, but also include sand and silt from older sluice and hydraulic mining techniques. Because of the physical nature of the mining activities, any fossils that may have been present would likely have been destroyed during the mining. Therefore, this formation is considered to be of low paleontological sensitivity.

Mehrten Formation Vertebrate mammal and plant fossils have been reported from the Mehrten Formation throughout the Sierra Nevada foothills and the eastern margin of the Central Valley. Several vertebrate fossil specimens have been discovered near Camanche Reservoir in Amador County. Other vertebrate fossils have been recovered from the Mehrten Formation from over 40 locations in Calaveras, San Joaquin, Stanislaus, Tuolumne, and Merced Counties (UCMP 2011). In addition, several specimens of plant fossils have been recovered from the Mehrten Formation in Amador County near Camanche Reservoir (UCMP 2011) and in Granite Bay, Roseville, and Rocklin (Sierra College 2011). Because of the large number of fossils that have been recovered from the Mehrten Formation, it is considered a paleontologically sensitive rock unit under the Society of Vertebrate Paleontology guidelines (1995).

Results of a paleontological records search at the UCMP indicated no fossil remains within the Proposed Site or the Alternative 1 Site, and no fossils were observed during a cursory field visit. However, the occurrence of Plio-Pleistocene vertebrate fossil remains in the Mehrten Formation through the eastern margin of the Central Valley and Sierra Nevada foothills suggest that it is a paleontologically sensitive rock formation.

Regulatory Setting

Federal Plans, Policies, Regulations, and Laws The following Federal laws related to earth resources are relevant to the project and are described in detail in Section 5.6, “Compliance with Related Laws, Rules, Regulations, and Executive Orders”:

- Earthquake Hazards Reduction Act

State Plans, Policies, Regulations, and Laws

Alquist-Priolo Earthquake Fault Zoning Act The Alquist-Priolo Act (California Public Resources Code [PRC] Sections 2621–2630) was passed in 1972 to mitigate the hazard of surface faulting under structures designed for human occupancy. The main purpose of the law is to prevent buildings used for human occupancy from being constructed on the surface trace of active faults. The law addresses only the hazard of surface fault rupture and is not directed toward other earthquake hazards. The Alquist-Priolo Act requires the

State Geologist to establish regulatory zones known as Earthquake Fault Zones around the surface traces of active faults and to issue appropriate maps. The maps are distributed to all affected cities, counties, and state agencies for their use in planning efforts. Before a project can be permitted in a designated Alquist-Priolo Earthquake Fault Zone, cities and counties must require a geologic investigation to demonstrate that proposed buildings would not be constructed across active faults.

Seismic Hazards Mapping Act The Seismic Hazards Mapping Act of 1990 (PRC Sections 2690–2699.6) addresses earthquake hazards from nonsurface fault rupture, including liquefaction and seismically induced landslides. The act established a mapping program for areas that have the potential for liquefaction, landslide, strong ground shaking, or other earthquake and geologic hazards. The act also specifies that the lead agency for a project may withhold development permits until geologic or soils investigations are conducted for specific sites and mitigation measures are incorporated into plans to reduce hazards associated with seismicity and unstable soils.

National Pollutant Discharge Elimination System Permit In California, the State Water Resources Control Board (SWRCB) administers regulations promulgated by the U.S. Environmental Protection Agency (Title 55 of the Code of Federal Regulations [CFR], Section 47990) requiring the permitting of stormwater-generated pollution under the National Pollutant Discharge Elimination System (NPDES). In turn, the SWRCB's jurisdiction is administered through nine regional water quality control boards. Under these Federal regulations, an operator must obtain a general permit through the NPDES Stormwater Program for all construction activities with ground disturbance of 1 acre or more. The general permit requires the implementation of best management practices (BMPs) to reduce sedimentation into surface waters and to control erosion. One element of compliance with the NPDES permit is preparation of a storm water pollution prevention plan (SWPPP) that addresses control of water pollution, including sediment, in runoff during construction. (Section 3.8, "Hydrology and Water Quality," contains more information about the NPDES and SWPPPs.)

California Building Standards Code The State of California provides minimum standards for building design through the California Building Standards Code (CBC) (Title 24 of the California Code of Regulations). The CBC applies to all occupancies throughout the state unless local amendments have been adopted, and includes regulations for seismic safety, excavation of foundations and retaining walls, and grading activities (including drainage and erosion control and construction on unstable soils).

The 2010 CBC (as amended in 2011) uses Seismic Design Categories A through F (where F requires the most earthquake-resistant design) for structures. These Seismic Design Categories provide protection through "collapse prevention," meaning that structures are designed to prevent collapse from the maximum level of ground shaking that could occur. Chapter 16 of the CBC specifies exactly how each seismic design category is to be determined on a site-specific basis. The determinations for a site depend on soil characteristics and proximity to potential seismic hazards.

Chapter 18 of the CBC regulates the excavation of foundations and retaining walls. This chapter describes the preparation of a preliminary soil report, engineering geologic report, geotechnical report, and supplemental ground-response report. Chapter 18 also describes how to analyze expansive soils and how to determine the depth to groundwater table. For Seismic Design Category C, Chapter 18 requires that slope instability, liquefaction, and surface rupture attributable to faulting or lateral spreading be analyzed. For Seismic Design Categories D, E, and F, Chapter 18 requires that these same analyses be made, plus that lateral pressures on basement and retaining walls, liquefaction and soil strength loss, and lateral movement or reduction in foundation soil-bearing capacity be evaluated. It also addresses mitigation measures to be considered in structural design, which may include stabilizing the ground, selecting the appropriate foundation type and depths, selecting appropriate structural systems to accommodate anticipated displacements, or choosing any combination of these measures. The potential for liquefaction and the loss of soil strength must be evaluated for site-specific peak ground acceleration magnitudes and source characteristics consistent with the design earthquake ground motions.

California Surface Mining and Reclamation Act SMARA (PRC Section 2710 et seq.) was enacted by the California Legislature in 1975 to regulate activities related to mineral resource extraction. The act requires adverse environmental effects caused by mining to be prevented, mined lands to be reclaimed for alternative land uses, and hazards to public health and safety from the effects of mining activities to be eliminated. At the same time, SMARA encourages extractive mineral resources to be both conserved and produced, requiring the State Geologist to identify and attach levels of significance to California's varied extractive resource deposits. Under SMARA, the mining industry in California must plan adequately for mined sites to be reclaimed for beneficial uses and must provide financial assurances to guarantee that the approved reclamation will actually be implemented. The requirements of SMARA must be implemented by the local lead agency with permitting responsibility for the proposed mining project.

Regional and Local Plans, Policies, Regulations, and Ordinances The JOC Relocation Project is jointly proposed by Reclamation, a Federal agency, and DWR, a State agency. The Proposed Site is Federal property owned by Reclamation. A Federal agency operating on Federal land is not required to comply with regional or local plans, policies, regulations, or ordinances. However, a Federal agency normally will conform with local regulations and State laws that do not interfere with the agency's ability to "carry out the purposes of the government," such as building, health, and safety codes (*Fort Leavenworth R.R. v. Lowe*, 114 U.S. 525 [1885]).

Activities at the Proposed Site would not be required to comply with regional or local regulations, but Reclamation has committed to a "good neighbor" policy and would conform with those regulations to the extent that such compliance would not conflict with or hinder the mission and purposes of the agency or the departments located at the site. Activities at the Alternative 1 Site would take place on private property and would require full compliance with all regional and local regulations.

Sacramento County General Plan The goals, objectives, and policies from the *1993 County of Sacramento General Plan* (Sacramento County 1993) related to earth and paleontological resources that apply to the Proposed Action and alternatives under consideration are listed below:

Safety Element

GOAL: Minimize the loss of life, injury, and property damage due to seismic and geological hazards.

- **Policy SA-1:** The County shall require geotechnical reports and impose the appropriate mitigation measures for new development located in seismic and geologically sensitive areas.

Conservation Element

Objective: Orderly extraction of minerals and subsequent reclamation of mined areas with minimal adverse impacts on aquifers, streams, scenic values, and surrounding residential uses.

- **Policy CO-43:** Surface mining operations shall be subject to appropriate mitigation measures and shall avoid creating any significant nuisances, hazards, and adverse environmental impacts unless the Board of Supervisors makes the findings to override as required by CEQA Guidelines Section 15091.

Objective: Sequential timing for mining of aggregate areas linked to the timing of urban development.

- **Policy CO-48:** Due to predicted shortages of aggregates in Sacramento County, mining of mineral resources within the Urban Services Boundary (USB) is encouraged, where consistent with Habitat Conservation Plans or other County initiated conservation programs and where such mining does not preclude successful completion of these plans, to avoid the potential loss of these mineral resources as a result of potential urban development. This policy is not intended to preclude mining outside of the USB.

Objective: A cost effective program using best management practices to reduce pollutants in urban runoff discharged to Waters of the State to the maximum extent economically feasible and practicable, and comprehensive monitoring and reporting to evaluate program effectiveness and satisfy regulations.

- **Policy CO-32:** Development shall not occur in areas that are particularly susceptible to erosion.

- **Policy CO-38:** Development, including infrastructure shall be designed, built and landscaped:

  - To minimize erosion during and after construction.
  - To minimize grading on slopes above 20%.

Sacramento County General Plan Update Sacramento County is in the process of preparing a draft Sacramento County General Plan Update (Sacramento County 2010) and EIR to plan for growth in the period 2010–2030. Until that EIR has been certified and the update has been adopted by the Sacramento County Board of Supervisors, the 1993 general plan remains in effect. Following receipt of a third-party review in December 2010, hearings on the general plan began in spring 2011 and are ongoing.

Sacramento County Zoning Code Title II, Article 4, Surface Mining The County has adopted its own SMARA ordinance, which is modeled after the State's SMARA guidelines (see above). The County's SMARA ordinance is designed to protect mineral resources from incompatible land uses, to manage the mineral resources, to ensure the County has an adequate supply of these resources with due consideration for the environment, and to provide for the restoration of mined lands for future use. A conditional use permit is required for surface-mining operations in Sacramento County.

Sacramento County/City of Rancho Cordova Land Grading and Erosion Control Ordinance The County's Land Grading and Erosion Control Ordinance (County Code, Title 16, Chapter 16.44), which was adopted by the City of Rancho Cordova upon its incorporation, was enacted to minimize damage to surrounding properties and public rights-of-way, limit degradation of the water quality of watercourses, and curb the disruption of drainage system flow caused by the activities of clearing, grubbing, grading, filing, and excavating land. The ordinance includes administrative procedures, minimum standards of review, and implementation and enforcement procedures for controlling erosion and sedimentation that are directly related to land-grading activities.

City of Rancho Cordova General Plan The goals and policies from the *Rancho Cordova General Plan* (City of Rancho Cordova 2006b) related to earth and paleontological resources that apply to the Alternative 1 Site and the No-Action Alternative are listed below:

Safety Element

GOAL S.3: Reduce the risk of adverse effects to residents or businesses as a result of geologic or seismic instability.

- **Policy S.3.2:** Ensure that new structures are protected from damage caused by geologic and/or soil conditions to the greatest extent feasible.

Cultural and Historic Resources Element

- **Policy CHR.1.**3: Establish review procedures for development projects that recognize the history of the area in conjunction with State and federal laws.

Professional Paleontological Standards The Society of Vertebrate Paleontology (1995, 1996), a national scientific organization of professional vertebrate paleontologists, has established standard guidelines that outline acceptable professional practices in the conduct of paleontological resource assessments and surveys, monitoring and mitigation, data and fossil recovery, sampling procedures, specimen preparation, analysis, and curation. Most practicing professional paleontologists in the nation adhere to the Society

of Vertebrate Paleontology assessment, mitigation, and monitoring requirements, as specifically spelled out in its standard guidelines.

3.6.2 Environmental Consequences and Mitigation Measures

Methods

The analysis of geology, soils, and seismic hazards prepared for this EIS/EIR relied on information provided by Reclamation, a review of published geological literature and maps, a review of published USDA Soil Survey data, and professional judgment. The analysis of mineral resources was based on a review of literature published by the CGS. Impacts associated with geology, soils, and mineral resources that could result from project construction and operational activities were evaluated qualitatively based on site conditions, expected construction practices, and locations and duration of project construction activities.

In its standard guidelines for assessment and mitigation of adverse impacts on paleontological resources, the Society of Vertebrate Paleontology (1995) established three categories of sensitivity for paleontological resources: high, low, and undetermined. Areas where fossils have been previously found are considered to have a high sensitivity and a high potential to produce fossils. Areas that are not sedimentary in origin and that have not been known to produce fossils in the past typically are considered to have low sensitivity. Areas that have not had any previous paleontological resource surveys or fossil finds are considered to be of undetermined sensitivity until surveys and mapping are performed to determine their sensitivity. After reconnaissance surveys, observation of exposed cuts, and possibly subsurface testing, a qualified paleontologist can determine whether the area should be categorized as having high or low sensitivity. In keeping with the significance criteria of the Society of Vertebrate Paleontology (1995), all vertebrate fossils are generally categorized as being of potentially significant scientific value.

Criteria for Determining Significance of Effects

Determinations of significance in this EIS/EIR are based on the environmental checklist in Appendix G of the State CEQA Guidelines, as amended. These determinations are provided pursuant to CEQA.

The Proposed Action and alternatives under consideration would be considered to have a significant impact related to earth resources if they would:

- expose people, property, or structures to potential substantial adverse impacts, including the risk of loss, injury, or death involving:
    - 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;
    - strong seismic ground shaking;
    - seismic-related ground failure, including liquefaction; or

- landslides;

- result in substantial soil erosion or the loss of topsoil;
- 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;
- 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;
- 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 waste water; or
- result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state or a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

A project would have a significant impact on paleontological resources if it would directly or indirectly destroy a unique paleontological resource or site. A “unique paleontological resource or site” is one that is considered significant under the professional paleontological standards described below.

An individual vertebrate fossil specimen may be considered unique or significant if it is identifiable and well preserved, and it meets one of the following criteria:

- it is a type specimen (i.e., the individual from which a species or subspecies has been described);
- it is a member of a rare species;
- it is a species that is part of a diverse assemblage (i.e., a site where more than one fossil has been discovered) wherein other species are also identifiable, and important information regarding life history of individuals can be drawn;
- it is a skeletal element different from, or a specimen more complete than, those now available for its species; or
- it is a complete specimen (i.e., all or substantially all of the entire skeleton is present).

The value or importance of different fossil groups varies depending on the age and depositional environment of the rock unit that contains the fossils, their rarity, the extent to which they have already been identified and documented, and the ability to recover similar materials under more controlled conditions, such as part of a research project. Marine invertebrates are generally common; the fossil record is well developed and well documented, and they would generally not be considered a unique paleontological

resource. Identifiable vertebrate marine and terrestrial fossils are generally considered scientifically important because they are relatively rare.

Issues Not Discussed Further in This EIS/EIR

Risks to People or Structures Caused by Surface Fault Rupture—The sites under consideration for the Proposed Action and alternatives are located approximately 50 miles from the nearest Alquist-Priolo Earthquake Fault Zone, and they are not underlain by or adjacent to any known faults. Because the damage from surface fault rupture is generally limited to a linear zone a few yards wide, the potential for surface fault rupture to cause damage to proposed structures is negligible and this impact is not evaluated further in this EIS/EIR.

Soil Suitability for Use with Septic Systems—Sewer service at the sites under consideration for the Proposed Action and alternatives would be provided via connection with existing local and regional municipal treatment facilities. Because project-site soils would not be used for septic systems or alternative means of waste disposal, no impact would occur, and this issue is not evaluated further in this EIS/EIR.

Impact Analysis

See Table 3.0-2 for a summary of impacts and mitigation measures for Alternative 2 (incorporated by reference from the Mather Field Specific Plan FEIR).

Impact 3.6-1: Possible Risks to People and Structures Caused by Strong Seismic Ground Shaking

No-Action

Under the No-Action Alternative, no construction activities would occur and facility operations would continue as at present. The Interim JOC would remain in operation at its current location. More stringent seismic design requirements for Essential Services facilities that have been established by the State of California and the Federal government could not be implemented for the Flood Operations Center because of its integration with the surrounding structure. As a result, the Flood Operations Center would remain vulnerable to seismic ground shaking. This would result in a **direct, significant** impact. **No indirect impact** would occur.

Proposed Action and Alternative 1

The Proposed Site and the Alternative 1 Site are not located within a known fault zone, or within any faults known to be active during Holocene time. The West Branch of the Bear Mountains Fault is located approximately 6 miles east of the eastern property boundary (Jennings 1994); however, Jennings (1994) does not indicate that fault activity has occurred within the last 11,000 years, and the slip rate of the Foothills fault system is extremely low (0.05 millimeters per year), which is well below the planning threshold for major earthquakes (USGS 2000). As shown in Table 3.6-1, the Dunnigan Hills fault in Woodland, approximately 40 miles west of the Proposed Site, is the nearest fault that is known to have been

active within the last 11,000 years (Holocene time). Other faults that have been zoned as "active" by the CGS are located in the Coast Range (approximately 60 miles west of Proposed Site) or near Lake Tahoe (approximately 60 miles east of the Proposed Site).

Site-specific geotechnical analysis consistent with the requirements of the CBC would be prepared during the design process at either site. The final geotechnical engineering report would address and make recommendations on the following:

- site preparation;
- soil-bearing capacity;
- appropriate sources and types of fill;
- potential need for soil amendments;
- road, pavement, and parking areas;
- structural foundations, including retaining-wall design;
- grading practices;
- soil corrosion of concrete and steel;
- erosion/winterization;
- seismic ground shaking;
- liquefaction;
- expansive/unstable soils; and
- need for monitoring during earth-moving activities.

In addition, the geotechnical investigation would include subsurface testing of soil and groundwater conditions and would determine appropriate foundation designs that are consistent with the version of the CBC that is applicable at the time of construction. Design and construction of all new project development would be in accordance with the CBC.

Because site-specific geotechnical studies would be conducted and the recommendations incorporated into the project design, the potential for damage from strong seismic ground shaking would result in a **direct, less-than-significant** impact. **No indirect impacts** would occur.

Mitigation Measure: No mitigation is required for the Proposed Action or Alternative 1.

The No-Action Alternative would not be able to comply with the more stringent Essential Services requirements. As a result, the impact of possible damage to people and structures from strong seismic ground shaking would be **significant and unavoidable.**

Impact 3.6-2: Possible Seismically Induced Risks to People and Structures Caused by Liquefaction

No-Action

Under the No-Action Alternative, no construction activities would occur. Liquefaction is not known to be a concern at the Interim JOC facility; therefore, the project would not result in risks from liquefaction. **No direct** or **indirect impacts** would occur.

Proposed Action and Alternative 1
Soil liquefaction occurs when ground shaking from an earthquake causes a sediment layer saturated with groundwater to lose strength and take on the characteristics of a fluid, thus becoming similar to quicksand. Factors determining the liquefaction potential are soil type, the level and duration of seismic ground motions, the type and consistency of soils, and the depth to groundwater.

The Proposed and Alternative 1 Sites are covered with piles of cobbles left over from dredge mining activities. In addition to the cobbles, both sites also are covered with sand and silt deposits, called "slickens," also left over from mining activities. These deposits are extremely unstable, and the depth to groundwater in the area is likely 25–40 feet deep. Therefore, although the known active seismic sources are a relatively long distance away, the potential exists for liquefaction to occur during a large magnitude earthquake based on the unstable soils and shallow depth to groundwater.

Liquefaction poses a hazard to engineered structures. The loss of soil strength can result in bearing capacity insufficient to support foundation loads, increased lateral pressure on retaining or basement walls, and slope instability. These geotechnical considerations would be addressed in the site-specific geotechnical analysis conducted during the design phase, as described in Impact 3.6-1. Therefore, **direct** impacts related to potential damage to structures and possible risks to people from seismically induced liquefaction would be **less than significant**. **No indirect impacts** would occur.

Mitigation Measure: No mitigation is required.

Impact 3.6-3: Temporary and Short-term Construction-Related Erosion

No-Action
Under the No-Action Alternative, no construction activities would occur; therefore, the project would not result in any construction-related erosion. **No direct** or **indirect impacts** would occur.

Proposed Action and Alternative 1
Construction activities would involve excavating, moving, filling, and temporary stockpiling of soil within the Proposed and Alternative 1 Sites. Conducting these activities would result in the temporary and short-term disturbance of soil and would expose disturbed areas to winter storm events. Rain of sufficient intensity could dislodge soil particles from the soil surface. If the storm is large enough to generate runoff, localized erosion could occur. In addition, soil disturbance during the summer as a result of construction activities could result in soil loss because of wind erosion. Therefore, temporary and short-term **direct** impacts associated with construction-related erosion would be **potentially significant.** Temporary and short-term **indirect** impacts from soil erosion, such as potential loss of aquatic habitat and sediment transport, are evaluated in Section 3.3, "Biological Resources," and Section 3.8, "Hydrology and Water Quality," respectively.

Mitigation Measure 3.6-3: Prepare and Implement a Grading and Erosion Control Plan

No-Action
No mitigation is required.

Proposed Action and Alternative 1
Reclamation and DWR will retain a California Registered Civil Engineer to prepare a grading and erosion control plan. The plan shall be consistent with the NPDES permit required by the Central Valley Regional Water Quality Control Board. The plan shall include the location, implementation schedule, and maintenance schedule of all erosion and sediment control measures, a description of measures designed to control dust and stabilize the construction-site road and entrance, and a description of the location and methods of storage and disposal of construction materials. Erosion and sediment control measures could include using detention basins, berms, swales, wattles, and silt fencing and covering or watering of stockpiled soils to reduce wind erosion. Stabilization on steep slopes could include constructing retaining walls and reseeding them with vegetation after construction. Stabilization of construction entrances to minimize trackout (control dust) is commonly achieved by installing filter fabric and crushed rock to a depth of approximately 1 foot. Reclamation and DWR will ensure that the construction contractor is responsible for securing a source of transportation and deposition of excavated materials.

Responsibility: Reclamation and DWR

Timing: Before construction activities begin.

Implementing Mitigation Measure 3.6-3 would reduce potentially significant temporary and short-term construction-related erosion impacts under the Proposed Action and Alternative 1 to a **less-than-significant** level because grading and erosion control plans with specific erosion and sediment control measures, such as those suggested above, would be prepared, approved, and implemented.

Impact 3.6-4: Potential Geologic Hazards Related to Construction in Unstable Soils

No-Action
Under the No-Action Alternative, no construction activities would occur; therefore, the project would not result in any geologic hazards from construction in unstable soils. **No direct or indirect impact** would occur.

Proposed Action and Alternative 1
As discussed above, in “Environmental Setting,” the Proposed and Alternative 1 Sites are covered with piles of cobbles up to 30 feet high as a result of dredge mining activities. In addition to the cobbles, the mine tailings include areas of unconsolidated, uncompacted silt and sand (i.e., slickens). These materials are known to be highly subject to settlement and subsidence. If building foundations were to be constructed directly on top of the cobbles and slickens materials

without using specific engineering designs to address the unstable conditions, building foundations could shift and settle, resulting in substantial structural damage. These geotechnical considerations would be addressed in the site-specific geotechnical analysis conducted during the design phase, as described in Impact 3.6-1.

If the mine tailings would be removed before construction activities begin (see Impact 3.6-6, below), construction of building foundations would occur in stable native soils. These geotechnical considerations would be addressed in the site-specific geotechnical analysis conducted during the design phase, as described in Impact 3.6-1. The **direct** impacts from construction in unstable soils would be **less than significant. No indirect impacts** would occur.

Mitigation Measure: No mitigation is required.

Impact 3.6-5: Potential Damage to Structures and Infrastructure from Construction in Expansive Soils

No-Action
Under the No-Action Alternative, no construction activities would occur; therefore, the project would not result in any geologic hazards from construction in expansive soils. **No direct** or **indirect impact** would occur.

Proposed Action and Alternative 1
Expansive soils shrink and swell as a result of moisture change. These volume changes can result in damage over time to building foundations, underground utilities, and other subsurface facilities and infrastructure if they are not designed and constructed appropriately to resist the damage associated with changing soil conditions. The Xerorthents currently present on both the Proposed Site and the Alternative 1 Site are not expansive. If the cobbles were removed, project components would be constructed in native undisturbed sediments. Given the location of the Proposed Site and the Alternative 1 Sites near the American River and the nature of the underlying geologic formations, the native soils likely consist primarily of silt and sand with minor amounts of gravel (which are not expansive). However, because site-specific soil testing at the Proposed and Alternative 1 Sites has not been performed, whether the native soils at these sites (i.e., underneath the mine tailings) contain pockets of clay that could be expansive is unknown. These geotechnical considerations would be addressed in the site-specific geotechnical analysis conducted during the design phase. Therefore, this **direct** impact would be **less than significant**. **No indirect impacts** would occur.

Mitigation Measure: No mitigation is required.

Impact 3.6-6: Potential Loss of Mineral Resources

No-Action
Under the No-Action Alternative, no construction activities would occur; therefore, the project would not result in any potential loss of mineral resources. **No direct** or **indirect impact** would occur.

Proposed Action and Alternative 1
The Proposed Site and the Alternative 1 Site are located within the Sacramento-Fairfield Production-Consumption Region, a mineral resources area designated by CDMG as containing "regionally significant" mineral deposits that may be needed to meet future demand. Furthermore, the Proposed and Alternative 1 Sites are classified by CDMG as MRZ-2 (areas where adequate information indicates that significant mineral deposits, in this case construction aggregate, are present or where a high likelihood for their presence is judged to exist). Although the adopted *1993 County of Sacramento General Plan* Open Space Element (Sacramento County 1993) indicates that both the Proposed and Alternative 1 Sites are located in areas of "Significant Mineral Deposits," the DEIR for the proposed Sacramento County General Plan Update (Sacramento County 2010) designates new local Mineral Resource Areas, and neither the Proposed nor the Alternative 1 Sites are located within these new local Mineral Resources Areas.

The Proposed Site is less than 40 acres and is located next to residential development, the Nimbus Fish Hatchery, the recreational area of the American River Parkway, and is precluded from future mining because of conflicting adjacent land use. Alternative 1 is also less than 40 acres and is adjacent to residential and commercial office structures, which would be incompatible land uses with mining.

DWR would instruct the project's construction contractor to reuse the existing mineral resources on either the Proposed Site or the Alternative 1 Site for on-site building and parking lot foundations, as well as landscaping, to the extent economically feasible and practicable. For the reasons stated above, this **direct** impact from loss of regionally and locally important mineral resources would be **less than significant. No indirect impacts** would occur.

Mitigation Measure: No mitigation is required.

Impact 3.6-7: Possible Damage or Destruction of Previously Unknown Unique Paleontological Resources during Construction-Related Activities

No-Action
Under the No-Action Alternative, no construction activities would occur; therefore, the project would not result in any potential loss of mineral resources. **No direct or indirect impact** would occur.

Proposed Action and Alternative 1
As discussed above, the surface of the Proposed and Alternative 1 Sites are covered by dredge tailings. Because of the physical nature of the mining

activities, any fossils that may have been present would likely have been destroyed during the mining. Therefore, this formation is considered to be of low paleontological sensitivity, and construction activities that occur in the dredge tailings would have a less-than-significant impact on unique paleontological resources.

Prior to the mining activities, the dredge tailings were underlain by the Modesto and/or Riverbank Formations (i.e., Victor Formation). However, those formations were removed during the mining activities, and now the Mehrten Formation is present underneath the dredge tailings. As discussed previously, because of the large number of fossils that have been recovered from the Mehrten Formation, this formation is considered to be a paleontologically sensitive rock unit under the Society of Vertebrate Paleontology guidelines (1995), thus suggesting that potential exists for uncovering additional fossil remains during construction-related earthmoving activities in this formation at the Proposed Site and the Alternative 1 Site. Therefore, the potential for damage to previously unknown unique paleontological resources during earthmoving activities at the Proposed Site and the Alternative 1 Site would be a **direct, potentially significant** impact. **No indirect impacts** would occur.

Mitigation Measure 3.6-7: Conduct Construction Personnel Education, Stop Work if Paleontological Resources Are Discovered, Assess the Significance of the Find, and Prepare and Implement a Recovery Plan as Required

To minimize potential adverse impacts on previously unknown and potentially unique paleontological resources important to science, Reclamation and DWR will do the following:

- Before any earthmoving activities begin in the Mehrten Formation, Reclamation and DWR will retain a qualified paleontologist or archaeologist to train all construction personnel involved with earthmoving activities (including the site superintendent) regarding the possibility of encountering fossils, the appearance and types of fossils likely to be seen during construction, and the proper notification procedures should fossils be encountered.

- If paleontological resources are discovered during earthmoving activities, the construction crew shall immediately cease work in the vicinity of the find and notify Reclamation, DWR, and the City of Rancho Cordova Planning Department. Reclamation and DWR will retain a qualified paleontologist to evaluate the resource and prepare a recovery plan in accordance with Society of Vertebrate Paleontology guidelines (1996). The recovery plan may include, but is not limited to, a field survey, construction monitoring, sampling and data recovery procedures, museum storage coordination for any specimen recovered, and a report of findings. Recommendations in the recovery plan that are determined by Reclamation and DWR to be necessary and feasible

shall be implemented before construction activities can resume at the site where the paleontological resources were discovered.

Responsibility: Reclamation and DWR

Timing: Before and during earthmoving activities in the Mehrten Formation.

Implementing Mitigation Measure 3.6-7 would reduce potentially significant impacts related to damage or destruction of unique paleontological resources within the Mehrten Formation to a **less-than-significant** level under the Proposed Action and Alternative 1 because construction workers would be alerted to the possibility of encountering paleontological resources, and if resources were encountered, fossil specimens would be recovered and recorded and would undergo appropriate curation.

Residual Significant Impacts

Implementing the mitigation measures described in this section would reduce all potentially significant or significant effects for the Proposed Action and Alternative 1 related to earth and paleontological resources to less-than-significant levels. However, under the No-Action Alternative, the more stringent seismic design requirements for Essential Services facilities that have been established by the State of California and the Federal government could not be implemented for the Flood Operations Center because of its integration with the surrounding structure. As a result, the Flood Operations Center would remain vulnerable to seismic ground shaking, and this impact would remain significant and unavoidable under the No-Action Alternative.

3.6.3 Cumulative Impacts

Geology and Soils

The Proposed Action, Alternative 1, and the related projects are located within the eastern side of the Sacramento Valley. The geologic formations and soil types vary depending on project location, and therefore are site specific.

Implementing the related projects could expose structures and people to seismic and soils hazards, including strong seismic ground shaking, liquefaction, construction in unstable soils, construction in expansive soils, and loss of soil through erosion. However, each project considered in this cumulative analysis must individually meet CBC building code requirements and the requirements of local policies (i.e., grading and erosion control plans); therefore, no additive effect would result and there would not be an overall significant cumulative impact related to seismic or soil hazards. Thus, implementing either the Proposed Action or Alternative 1, when considered with the related projects, would not create additional facilities under increased risk of hazards and would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to seismic and soil hazards.

Mineral Resources

The Proposed Action, Alternative 1, and the related projects are located within the eastern side of the Sacramento Valley, south of U.S. 50. CDMG Open-File Report 99-09

(Dupras 1999) shows the locations of known mineral resources, and areas where mineral resources may be present, in Sacramento County. These areas are located primarily along the present day and historic channels of the American River, in eastern Sacramento County. According to CDMG, "Since the mid 1800s the majority of readily available high-grade sand and gravel resources in Sacramento County have been lost by urbanization, dredging, aggregate mining, and riparian habitat restoration. Throughout the 19th and 20th centuries, most of Sacramento County's aggregate has been supplied by the American River channel and its associated terraces. Most of these resources are no longer viable for mining operations." (Dupras 1999:26.) "The anticipated consumption of all aggregate in Sacramento County for the next 50 years (through the year 2049) is estimated to be 688 million tons, of which approximately 65% or about 447 million tons must be of PCC-grade quality. Current PCC-grade aggregate resources in Sacramento County total 202 million tons. Over the next 50 years, Sacramento County will have to develop new aggregate resources within areas zoned as MRZ-3 or it will have to rely on imported aggregate from outside the county." (Dupras 1999:ii, iii). Because of the historic loss of PCC-grade aggregate resources as a result of urbanization in the County, a cumulatively significant impact from loss of mineral resources has occurred and continues to occur as urban development proceeds.

The smallest aggregate quarry operations in Sacramento County occur on parcels that are 48 and 52 acres, respectively; nearly all of the other aggregate quarries consist of 100 acres or more (Dupras 1999). The Proposed Site and the Alternative 1 Site are each less than 25 acres and therefore contain a small quantity of minerals, and neither site is designated as an ARA. As discussed in Impact 3.6-6 above, the Proposed and Alternative 1 Sites are already precluded from aggregate mining because they are located adjacent to existing residential and commercial development. Therefore, implementing the project would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to loss of mineral resources.

Paleontological Resources

Fossil discoveries resulting from excavation and earthmoving activities associated with development are occurring with increasing frequency throughout the state. The value or importance of different fossil groups varies depending on the age and depositional environment of the rock unit that contains the fossils, their rarity, the extent to which they have already been identified and documented, and the ability to recover similar materials under more controlled conditions, such as part of a research project. Unique, scientifically important fossil discoveries are relatively rare, and the likelihood of encountering them is specific to a site and based on the type of specific geologic rock formations found underground. These geologic formations vary from location to location.

The Proposed and Alternative 1 Sites are underlain by the Mehrten Formation (beneath the dredge tailings), which is considered a paleontologically sensitive rock unit, thus suggesting that the potential exists to uncover additional fossil remains during construction-related earthmoving activities in these formations. Mitigation Measure 3.6-6 would reduce project-related impacts on previously undiscovered paleontological resources to a less-than-significant level. Depending on the site-specific geologic formations under the related projects, construction activities at the related projects could

result in potential damage or destruction of unique paleontological resources unless appropriate mitigation measures are in place or general plan policies to protect such resources have been adopted.

When unique, scientifically important fossils are encountered by construction activities, assuming that appropriate mitigation measures are in place and general plan policies are adopted to ensure their protection and recovery, the subsequent opportunities for data collection and study generally provide a benefit to the scientific community. While the *Rancho Cordova General Plan* contains policies that require a paleontological resources investigation and protection of resources from damage or destruction, Sacramento County does not have any such policies. Therefore, because it is unknown whether the related projects outside of Rancho Cordova would implement appropriate mitigation measures, the related projects could result in a cumulatively considerable impact related to damage or destruction of unique paleontological resources. However, because mitigation measures would be implemented to ensure that the Proposed Action or Alternative 1 would not result in a loss of unique paleontological resources, the Proposed Action or Alternative 1would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to paleontological resources.

3.7 Hazards and Hazardous Materials

3.7.1 Affected Environment

This section describes the affected environment related to hazards and hazardous materials for the JOC Relocation Project. The analysis is based on the Hazardous Materials Phase I Environmental Site Assessment (ES) prepared for the project (AECOM 2011b). The Phase I ES was conducted consistent with the American Society of Materials Testing (ASTM) Standard Practice for Environmental Site Assessments (E 1527-05), which meets the requirements of All Appropriate Inquiry (AAI) except as identified by AECOM (2011b). A copy of the assessor's parcel map is provided in AECOM (2011b).

Proposed Action

The Proposed Site consists of an approximately 19.5-acre parcel and adjacent access road located in Sacramento County, approximately 0.5 mile west of the intersection of U.S. Highway 50 and Hazel Avenue, and approximately 0.25 mile south of the American River and the property that includes Nimbus Road. The Sacramento County assessor's parcel numbers (APNs) are 069-0040-040-0000 for the property parcel and 069-0040-001-0000 and 069-0040-087-0000 for the Nimbus Road parcels. Photographs of the Proposed Site and additional specific information are provided in the Phase I ES prepared for the project (AECOM 2011b).

Mining History The Proposed Site is located on the river bench known historically as Tate's (Tait's, Teat's) Flat. Like all land close to rivers and streams during the first decades of California's gold mining era, Tate's Flat was mined by placer methods. The entire parcel was worked by bucket-line dredges in the early 20th century. Tailings within the Proposed Site and vicinity were created primarily by the Syndicate Dredging Company, with remnants of Natomas Consolidated operations in the east and southern periphery. One portion of the Natomas tailings remains, a 468-foot segment that dates to January 1909. A detailed discussion of the mining and dredging history is presented in Section 3.5, "Cultural Resources."

During placer mining processes, dredged material was directed through sluices and drainage tunnels, where gold particles combined with liquid mercury to form gold–mercury amalgam. Loss of mercury during this process can result in highly contaminated sediments at mine sites (USGS 2000). Dredged sediments and channel materials from the American River have also been found to contain elevated concentrations of other heavy metals including arsenic as a result of finely-ground tailings deposits from historical hard rock mining activities that occurred in upstream areas. Because the site was previously used for placer mining and dredged sediment from the American River was stored on the site, the potential exists for elevated concentrations of mercury and other heavy metals in soils and mine tailings.

Federal Emergency Management Agency Flood Zone Information According to information from the Federal Emergency Management Agency (FEMA) (Panel 2944638.2s) provided in the Environmental Data Resources (EDR) report (EDR 2010a

and 2010b), the Proposed Site is not located within either the 100-year or 200-year flood zones. However, the site is located approximately 0.25 mile south of the 100-year flood zone, and approximately 0.5 mile west of the 500-year flood zone (EDR 2010a:15). For more information, see Section 3.8, "Hydrology and Water Quality."

Alternative 1

The Alternative 1 Site is a privately owned property on portions of five adjoining parcels of land; a total combined area of 21.2 acres would be used by the project. A copy of the assessor's parcel map is provided by AECOM (2011).

Parcel 072-0260-049-0000 encompasses Parcel D of the adjacent Brighton Oil Site. Parcel D has not been subject to the remedial investigation or subsequent land use restrictions applied to Parcels A through C. The Brighton Oil Site is described further in the section "Previous Environmental Reports."

Additional specific information regarding the Alternative 1 Site use is provided in the "Site Reconnaissance" section below.

Mining History The earliest known uses of the Alternative 1 Site and immediate vicinity are for agriculture and for gold dredging in the early to mid-1900s. Natomas Consolidated of California expanded dredging operations southward, and these operations included the Alternative 1 Site and vicinity. A review of aerial photographs presented in Table 3.7-2 shows that dredging occurred between 1947 and 1952 (EDR 2010b). The Alternative 1 Site has one area of remaining dredge tailings, located near the termination of Crawford Drive, as well as surface cobbles most likely left from the original tailings. A detailed discussion of the mining and dredging history is presented in Section 3.5, "Cultural Resources."

Because the site was previously used for placer mining and dredged sediment was stored on the site, the potential exists for elevated concentrations of mercury and other heavy metals in soils and mine tailings.

Site Reconnaissance

Proposed Action On December 22, 2010, a site and area reconnaissance survey was conducted at the Proposed Site. The full report of that survey is provided in AECOM (2011); a summary is provided below. Exhibit 3.7-1 shows existing features on the Proposed Site.

Hazardous Waste No underground or aboveground storage tanks, unusual odors, pools of liquid, or hazardous materials were observed or noted at the site. Hazardous wastes are not generated at the site, and the EDR database information does not indicate violations with respect to waste storage or disposal (EDR 2010a).

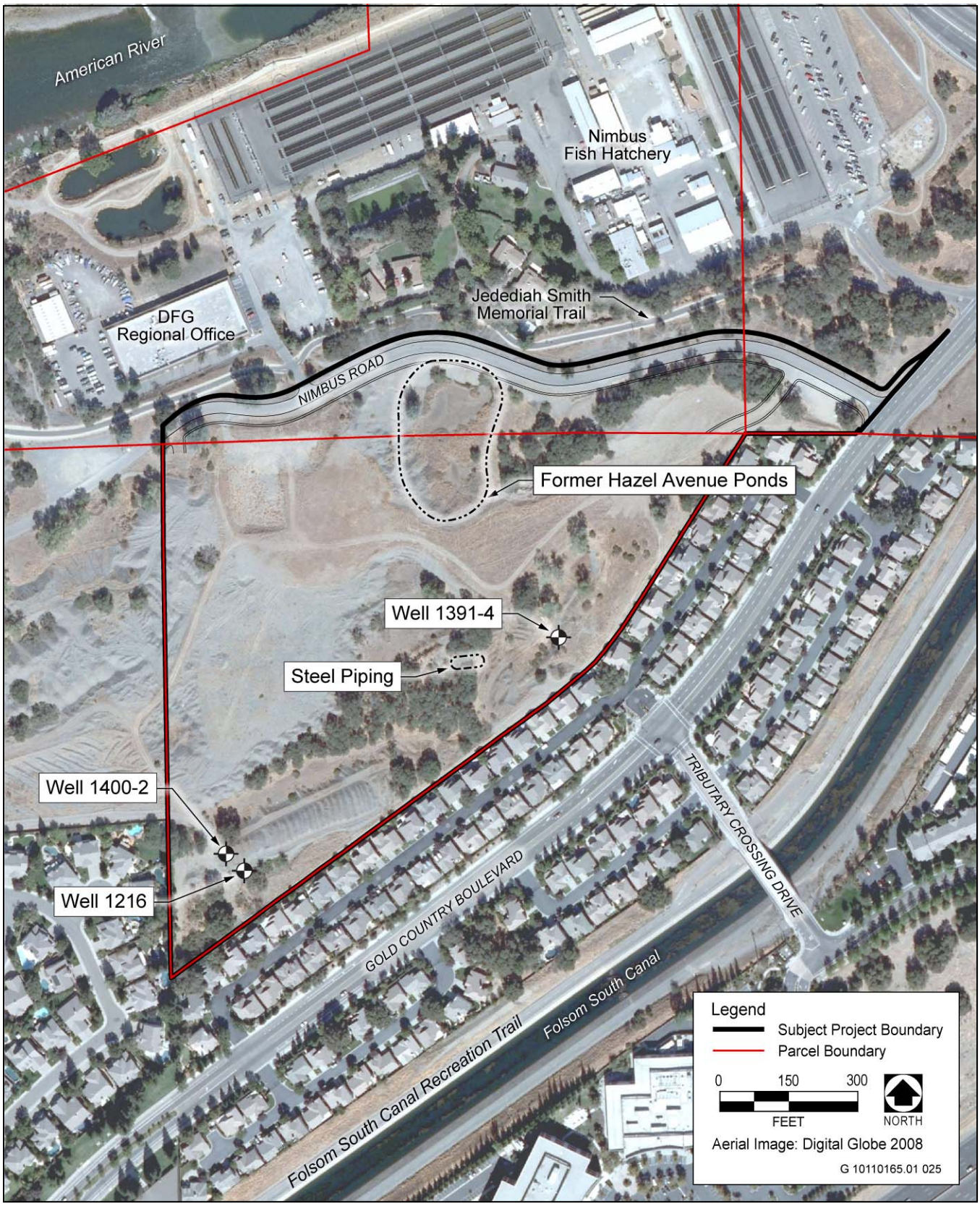

Exhibit 3.7-1: Known Hazardous Conditions at the Proposed Site

Solid (Nonhazardous) Waste At the midpoint of the site's southeastern property boundary, an approximate 10-foot length of abandoned, galvanized steel piping was observed. Also, immediately south of the medium-size ponds, which appear to be remnants of the Hazel Avenue Ponds (HAP) (discussed below under "Previous Environmental Reports"), is an approximately 20-foot line of granite boulders ranging from 1 to 4 feet in diameter, which are not consistent with the other terrain at the site. Minimal amounts of dispersed trash, such as isolated cans and paper, were present.

Water and Wastewater/Stormwater Three monitoring wells are located along the site's southeastern boundary. Near the southern corner of the site, two groundwater monitoring wells associated with the Aerojet site (identified as well 1216 and triple completion well 1400-2) were observed. Quadruple completion well 1391-4 is located near the midpoint of the southeast site boundary. The location of the wells is shown on Exhibit 3.7-1.

Lead-Based Paint No buildings or features other than the monitoring wells are present; therefore, a lead-based paint survey was not conducted.

Asbestos-Containing Materials Assessment for asbestos-containing materials was not conducted because there are no structures present on the site. The site is underlain by sedimentary rock from the Mehrten and Laguna Formations, and naturally occurring asbestos is not associated with these formations.

Radon According to the U.S. Environmental Protection Agency (EPA), Sacramento County is located within EPA Radon Zone 3, indicating that the average predicted indoor screening level for radon will be below 2.0 picoCuries per liter (pCi/l) of air. The EPA Recommended Action Level for radon in residential dwellings is 4.0 pCi/l. EPA has not designated a Recommended Action Level for radon in commercial or industrial buildings. The EDR Report identified 29 radon tests in zip code area 95670, with zero results greater than 4.0 pCi/l. Because the site is nonresidential and is located in Zone 3, radon is not considered a significant concern (EPA 2010). No additional radon evaluation was conducted.

Alternative 1 Site On January 10, 2011, a site and area reconnaissance was conducted at the Alternative 1 Site. The full report of that survey is provided in AECOM (2011); a summary is provided below. Exhibit 3.7-2 shows existing features on the Alternative 1 Site.

Hazardous Materials No underground or aboveground storage tanks, unusual odors, pools of liquid, electrical or hydraulic equipment potentially containing polychlorinated biphenyls (PCBs), or evidence of staining or corrosion was observed or noted at the Alternative 1 Site. However, multiple unlabelled drums, presumed to contain investigation derived waste, are present on the adjacent Brighton Oil Site. Photos are provided in AECOM (2011b) and the locations of the drums are summarized as follows:

- one steel drum is located near test pit and boring locations outside of the fence on the southern portion of Parcel C;

Exhibit 3.7-2. Known Hazardous Conditions Within and Adjacent to the Alternative 1 Site

- four plastic drums are located in the southwest corner of the fenceline, near monitoring well MW-11;
- three plastic drums are located on their sides along the southwest corner of Parcel C, and to the east of the four drums identified above;
- two steel drums are located within the fenced area of Parcel C near the midpoint of the fence;
- at least twelve drums are located near the north central part of the former Brighton Oil Site on Parcel B; and
- three rusted 1-gallon paint cans are present in the southern portion of APN 072-0260-049-0000, along Crawford Drive. These paint cans appear to represent a *de minimus* condition.

Hazardous Waste Hazardous wastes are not generated at the site. The EDR database information does not indicate violations with respect to waste storage or disposal (EDR 2010c). Past land use and practices resulted in waste disposal on APN 072-0260-049-0000, which are discussed further in AECOM (2011b). Other than the drums and paint cans discussed under "Hazardous Materials," no additional hazardous wastes were identified during the site reconnaissance.

Solid (Nonhazardous) Waste In the northern portion of the site, areas of concrete and asphalt debris disposal are present on APN 072-0680-072-0000. In the southern portion of the site, on APN 072-0680-068-0000, gravel and asphalt debris are present in numerous small piles of less than 2 cubic yards each, and miscellaneous debris, consisting of wood scraps and household materials, is present. Along Crawford Drive, in the southern portion of APN, 072-0260-049-0000, miscellaneous debris that includes polyvinyl chloride pipe (PVC) piping, wood scraps, and a concrete Pacific-Bell utility vault are present. No staining or evidence of impact were observed in or around these areas of debris.

The concrete and asphalt debris may be attributed to past disposal operations conducted during Delta Gunite Operations, which included Class III landfill operations (approximately 1976 to 1983) for disposal of construction debris (Versar 2000a:4; Bureau Veritas 2009:6). (Class III disposal refers to non-hazardous materials, including household and municipal wastes, yard wastes, and construction debris.)

Water and Wastewater/Stormwater Monitoring wells are present on the adjacent Brighton Oil Site and a copy of a site plan showing well locations is provided in AECOM (2011) (Bureau Veritas 2007b:Figure 3). No wells were identified on the Alternative 1 Site. The EDR database report lists one well to a depth of 490 feet below ground surface (bgs) (EDR 2010c:A10, A11), but this well was not identified during the reconnaissance. No wastewater generating processes are present on the Alternative 1 Site.

Lead-Based Paint No buildings or features other than the monitoring wells are present. A lead-based paint survey was not conducted.

Asbestos-Containing Materials Assessment for asbestos-containing materials was not conducted because there are no structures present on the Alternative 1 Site. The site is underlain by sedimentary rock from the Turlock and Laguna Formations, and naturally occurring asbestos is not associated with these formations.

Radon According to EPA, Sacramento County is located within EPA Radon Zone 3, indicating that the average predicted indoor screening level for radon will be below 2.0 pCi/l of air. The EPA Recommended Action Level for radon in residential dwellings is 4.0 pCi/l. EPA has not designated a Recommended Action Level for radon in commercial or industrial buildings. The EDR report identified 29 radon tests in zip code area 95670, with zero results greater than 4.0 pCi/l. Because the site is nonresidential and is located in Zone 3, radon is not considered a significant concern (EPA 2010). No additional radon evaluation was conducted.

Interviews

Interviews were conducted with individuals knowledgeable about the history and past uses of both sites. Those interviews are summarized below; details are provided in AECOM 2011b).

Proposed Site Mr. Kevin Mayer, the EPA Project Manager for Aerojet Superfund Remediation, states that the Proposed Site is within Zone 1 of Operable Unit 5 (OU-5) of the remediation area (Mayer, pers. comm., 2011). Mr. Mayer confirmed the groundwater use restrictions within Zone 1 due to contamination by volatile organic compounds (VOCs), perchlorate, and N-Nitrosodimethylamine (NDMA). Based on investigations described in the *Perimeter Groundwater Operable Unit Remedial Investigation/Feasibility Study, Lands Baseline Risk, Aerojet Superfund Site Sacramento, California* (Aerojet 2009), EPA believes that the data show there is no vapor exposure risk for the site. This report is summarized below and discussed in more detail in AECOM (2011b).

Ms. Jackie Keeler is Reclamation's land resources contact for the Proposed Site (Keeler, pers. comm., 2011). She directed questions to Mr. Pete Vonich, a Reclamation hazardous materials specialist (Vonich, pers. comm., 2011). He did not know of any environmental issues, other than the Aerojet groundwater impacts and the former Hazel Avenue Ponds (discussed below), associated with the site.

Alternative 1 Site

Aerojet Superfund Site Mr. Mayer indicated that the Alternative 1 Site is within OU-3, also known as the Western Groundwater Operable Unit (Mayer, pers. comm., 2011) of the Aerojet Superfund site. Mr. Mayer confirmed the groundwater use restrictions within OU-3 due to contamination by VOC and perchlorate. Soil vapor risks from the contaminated Aerojet groundwater are not an issue at the Alternative 1 Site because of the greater depth to groundwater than at the Proposed Site and the presence of a shallow water bearing zone that occurs between the aquifer zones affected by the contaminated Aerojet groundwater.

Purity Oil/Delta Gunite/Brighton Oil Site Mr. Rick Fears is the California Department of Toxic Substances Control (DTSC) Project Manager providing regulatory oversight for the environmental activities at the former Purity Oil/Delta Gunite/Brighton Oil Site (Fears, pers. comm., 2011) (see Exhibit 3.7-2). He verified that the Parcel A, B, C, and D designations match the APNs. Parcel D is being evaluated separate from Parcels A, B, and C, and this occurred after purchase by the Evergreen Company. He identified a 500-cubic-yard soil removal on Parcel D, but stated that sampling was for petroleum hydrocarbons only, and not the complete list of constituents for the adjacent Purity Oil Site. DTSC believes additional sampling of soil and potentially of groundwater is needed for Parcel D. He also described the past disposal practices for Purity Oil as the excavation and filling of trenches. The assessment activities at Parcels A, B, and C appear to have identified the impacts, and a remedial action plan proposing monitored natural attenuation is being developed for Parcels A, B, and C. Land use restrictions for commercial land use only are in place for Parcels A, B, C, and D. Mr. Fears suggested conducting a file review, which was completed on January 24, 2011. Summaries of the reports reviewed are provided below; more detailed descriptions are provided in AECOM (2011b).

Mr. Trey Gundlach, of The Evergreen Company, provided information about the company's acquisition of the site (Gundlach, pers. comm., 2011). The Evergreen Company purchased the property, which included Parcel D of the Purity Oil/Delta Gunite/Brighton Oil Site, in 2001. They did not purchase Parcels A, B, and C because of the known hazards issues present on those parcels.

Mr. Vonich was not aware of any impacts associated with the proximity of the Folsom South Canal and associated Folsom South Canal Recreation Trail that might have the potential to affect the Alternative 1 Site (Vonich, pers. comm., 2011).

Historical Records Review

Proposed Action The following historical sources were consulted to develop a history of the previous uses or occupancies of the Proposed Site and surrounding area.

- Aerial photographs dated 1937, 1952, 1961, 1971, 1981, 1993, 1998, and 2005, obtained from EDR (EDR 2010e).
- Topographic maps dated 1970 (Sacramento, 120-minute series), 1994 (Sacramento, 30x60-minute series), and 1995 (Folsom, 7.5-minute series).

According to EDR-Sanborn, Inc., Sanborn Fire Insurance map coverage is not available for the Proposed Site (EDR 2010d). Historical research indicates that the Proposed Site and surrounding area have been largely undeveloped. The Proposed Site and surrounding area were historically used for gold mining operations and dumping of dredge tailings. Buildings north of the Proposed Site were present as early as the 1950s, beginning with small isolated structures and then construction of the fish hatchery in the 1960s. Beginning in the 1990s, construction of the Gold River housing development began, which was mostly completed before 1998. A summary of the specific historical uses of the Proposed Site and surrounding land uses is provided below in Table 3.7-1.

Table 3.7-1
Historical Use of the Proposed Site and Surrounding Area

Date	Type of Document	Description	Level of Concern
1937	Aerial Photograph	Subject Property—The site is undeveloped with large piles of dredge tailings present. Adjacent sites –The site vicinity is undeveloped with large piles of dredge tailings present.	None None
1952	Aerial Photograph	Subject Property—The site is undeveloped with large piles of dredge tailings present. Two to three small access roads are present on the site. Adjacent sites—The site vicinity is mostly undeveloped. Several small structures and access roads have been constructed. The American River has been diverted, and construction of Nimbus Dam has begun.	None None
1961	Aerial Photograph	Subject Property—The site is undeveloped with large piles of dredge tailings present. Two to three small access roads are present on the site. Adjacent sites—The Nimbus Fish Hatchery has been constructed north of the site. Nimbus Dam has been constructed, and the American River diversion has been removed. Lake Natoma has formed behind Nimbus Dam. South of the site, U.S. Highway 50 has been constructed with an exit near the entrance to the Aerojet facility.	None None
1970	Topographic Map (Sacramento)	Subject Property—Appears undeveloped and unchanged. Adjacent sites—The Hazel Avenue bridge has been constructed, connecting to U.S. Highway 50.	None None
1971	Aerial Photograph	Subject Property—The site is undeveloped with large piles of dredge tailings present, with two to three small access roads present. Several small ponds appear at the site, formed in between the piles of dredge tailings. Adjacent sites—The Nimbus Fish Hatchery has been upgraded with additional facilities.	None None
1981	Aerial Photograph	Subject Property—Same as described above for the 1971 aerial photograph. Adjacent sites—The Folsom South Canal has been constructed, originating at Nimbus Dam and flowing to the southwest.	None None
1993	Aerial Photograph	Subject Property—Same as described above for the 1981 aerial photograph. Adjacent sites—Construction of the Gold River subdivision has begun to the southwest of the site. Commercial and industrial use buildings have been constructed along Folsom Boulevard to the south of the site.	None None
1994	Topographic Map (Sacramento)	Subject Property—No changes from 1993 aerial photograph. Small ponds appear on this topographic map, but not on the 1970 topographic map. Adjacent sites—No changes from 1993 aerial photograph. The Nimbus Fish Hatchery and other commercial/industrial use buildings appear on this topographic map, but not on the 1970 topographic map.	None None
1995	Topographic Map (Folsom)	Subject Property—No changes from 1993 aerial photograph or 1994 topographic map (Sacramento). Adjacent sites—No changes from 1993 aerial photograph or 1994 topographic map (Sacramento).	None None
1998	Aerial Photograph	Subject Property—Site is still covered with dredge tailings. The small ponds are no longer visible in this photograph. Adjacent sites—Construction of the Gold River subdivision is complete to the south and southwest of the site.	None None
2005	Aerial Photograph	Subject Property—Site is still covered with dredge tailings. One small pond is present along the northern boundary of the site. Adjacent sites—The number of commercial and industrial use buildings along Folsom Boulevard has increased.	None None

Source: Data compiled by AECOM in 2010

A discussion of previously prepared environmental reports for the site is summarized briefly below and provided in AECOM (2011b).

Alternative 1 The following historical sources were consulted to develop a history of the previous uses or occupancies of the Alternative 1 Site and surrounding area:

- Aerial photographs dated 1937, 1947, 1952, 1961, 1971, 1981, 1993, 1998, and 2005, obtained from EDR (EDR 2010b).
- Topographic maps dated 1970 (Sacramento, 120-minute series), 1994 (Sacramento, 30x60-minute series), and 1995 (Carmichael, 7.5-minute series).

According to EDR-Sanborn, Inc., Sanborn Fire Insurance map coverage is not available for the Subject Property area (EDR 2010f). Historical research indicates that the Alternative 1 Site and surrounding area had been largely undeveloped prior to the 1970s. The Alternative 1 Site and surrounding area were historically used as agricultural, until the 1950s when dredging operations that appear to have occurred between 1947 and 1952 resulted in large piles of dredge tailings deposited in rows at the site and surrounding areas. During the 1950s and through the 1970s, the property immediately north of the Alternative 1 Site was used as a waste oil processing facility, first by Brighton Oil and then by Purity Oil (Earth Technology Corporation 1987:Figures 2 and 3). From 1976 to 1983, Delta Gunite operations included a Class III disposal facility for construction debris and a truck repair shop, but these facilities were removed before 1987 (Earth Technology Corporation 1987:Figures 4 and 5). The Alternative 1 Site is presently undeveloped; however, immediately south of the site, construction work is being performed that is associated with the extension of International Drive from Kilgore Road to Sunrise Boulevard.

A summary of the specific historical uses of the Alternative 1 Site and surrounding land uses is provided below in Table 3.7-2. A discussion of previously prepared environmental reports for the site is provided in AECOM (2011b).

Previous Environmental Reports

The environmental reports summarized below were obtained from online regulatory agency sources, including GeoTracker (Central Valley Regional Water Quality Control Board [RWQCB]) and Envirostor (DTSC), and the applicable reports were reviewed to identify potential hazardous materials issues associated with the respective sites.

Proposed Action

Hazel Avenue Ponds The Proposed Site was previously part of an environmental investigation associated with the HAP site. The ponds were historically used by the Libby, McNeil and Libby olive processing plant as a discharge point for process wastes generated from 1917 to 1976. The wastes were transferred by open ditch and then pumped to nine ponds. The waste stream included salt, sulfur dioxide, sodium hydroxide, lime, ferrous gluconate, and lactic and acetic acid. The HAP site investigation was

Table 3.7-2
Historical Use of the Alternative 1 Site and Surrounding Area

Date	Type of Document	Description	Level of Concern
1937	Aerial Photograph	Subject Property—The site is undeveloped and used for agriculture. Adjacent sites—The site vicinity is undeveloped and used for agriculture.	None None
1947	Aerial Photograph	Subject Property—The site is undeveloped and used for agriculture. Adjacent sites—The site vicinity is mostly undeveloped agricultural land. Large piles of dredge tailings are present north of the site.	None None
1952	Aerial Photograph	Subject Property—The site is undeveloped with large piles of dredge tailings present. Adjacent sites—The site vicinity is undeveloped with large piles of dredge tailings present all around the site. Sunrise Boulevard and White Rock Road are now present along the northern and eastern site boundaries.	None None
1961	Aerial Photograph	Subject Property—Same as described for the 1952 aerial photograph. Adjacent sites—Same as described for the 1952 aerial photograph.	None None
1970	Topographic Map (Sacramento)	Subject Property—The site is undeveloped, and covered with dredge tailings. The topographic map is not detailed enough to recognize specific site features. Adjacent sites—The site vicinity is undeveloped, and covered with dredge tailings. The topographic map is not detailed enough to recognize specific site features.	None Low
1971	Aerial Photograph	Subject Property—The site is undeveloped, and covered with dredge tailings. A small access road off of Kilgore Road is now present. Adjacent sites—The Brighton Oil site to the north has been constructed at the southeast corner of the intersection of Kilgore Road and White Rock Road. Preliminary construction of the Folsom South Canal has begun along the eastern site boundary.	None None
1981	Aerial Photograph	Subject Property—The majority of the site is still undeveloped, but there has been some expansion of the Brighton Oil site to the south. Adjacent sites—The Folsom South Canal has been completed and bounds the site to the east. Dredge tailings are still present and abundant in the vicinity of the site.	Low None
1992	Topographic Map (Carmichael)	Subject Property—No significant changes to the site, compared to the 1970 Sacramento topographic map. Adjacent sites—The only significant change compared to the 1970 Sacramento topographic map is the addition of major roads in the site vicinity.	None None
1993	Aerial Photograph	Subject Property—Facilities associated with the Brighton Oil site have been removed. The site remains undeveloped. Dredge tailings remain, but the large aboveground piles are no longer apparent. Adjacent sites—Commercial and industrial buildings have been constructed around the site to the north, east, and west. Sunrise Boulevard, White Rock Road, and Kilgore Road have all been paved. The SMUD power substation has been constructed north of the site.	None None
1994	Topographic Map (Sacramento)	Subject Property—No changes from 1992 topographic map (Carmichael). Adjacent sites—No changes from 1992 topographic map (Carmichael).	None None
1998	Aerial Photograph	Subject Property—No significant changes from the 1993 aerial photograph. Adjacent sites—Commercial and industrial use areas around the site are further developed.	None None
2005	Aerial Photograph	Subject Property—No significant changes from the 1998 aerial photograph. Adjacent sites—Commercial and industrial use areas around the site are further developed.	None None

Notes: SMUD = Sacramento Municipal Utility District
Source: Data compiled by AECOM in 2010.

initiated in 1979 in response to detections of trichloroethylene (TCE) in groundwater extracted from two wells located down gradient of the site at the Nimbus Fish Hatchery. In 1982, the HAP site was included in the Superfund Priority Ranking List (SPRL). Analytical results from soil samples indicated that the HAP site was not the source of TCE found in the fish hatchery well water. Aerojet assumed responsibility for the contaminated groundwater found in the fish hatchery wells. DTSC determined in 1989 that contaminant levels in the ponds do not pose a health risk and no removal or remedial measures were necessary (DTSC 1989). Case closure was granted in 1989.

Aerojet Superfund Site The Proposed Site is located approximately 0.5 mile north of the main Aerojet facility, and is within the boundary of Zone 1 of the perimeter groundwater operable unit of the Aerojet superfund site. The Aerojet site has been used to develop rocket propulsion systems in support of national defense, space exploration, and satellite deployment since the 1950s. A variety of chemicals have been manufactured and used at the site, including solvents, propellants, fuels, oxidizers, metals, and various other chemicals produced to support industrial operations. Characterization of soil and groundwater beneath the Aerojet site has been ongoing since the early 1980s.

TCE was the most common chemical reported in groundwater detected in monitoring wells surrounding the Proposed Site, and 1,4-dioxane, perchlorate, and N-nitrosodi-methylamine (NDMA) have also been detected in surrounding wells (Central Valley Environmental 2005:19). Government oversight for the Aerojet Superfund site is shared by EPA—Region IX and the California Environmental Protection Agency (Cal/EPA) through the Central Valley RWQCB and DTSC.

Nimbus Fish Hatchery Immediately north of the Proposed Site is the Nimbus Fish Hatchery, where an underground storage tank (UST) investigation was initiated in 1997 following the removal of a 2,000-gallon diesel UST, and subsequent discovery of soils contaminated with petroleum hydrocarbons. Approximately 60 tons of contaminated soil was excavated to a depth of 15 feet bgs, and confirmation excavation soil samples were collected that contained 1,300 parts per million (ppm) total petroleum hydrocarbons as diesel (TPHd). In 2005, following soil borings and an assessment by Versar Inc., the Central Valley RWQCB reviewed summary information and decided that no further action was required at the site (EMD 2009:8).

Nimbus Flat State Park The Nimbus Flat State Park UST investigation (Nimbus Flat) is located approximately 1 mile northwest of the Proposed Site. This investigation was initiated in 2009 following removal of two USTs from the site (which is currently an occupied residence) and previously included one 250-gallon gasoline UST as well as one 250-gallon heating oil UST. Following excavation and removal of the two USTs, confirmation soil samples were collected from each of the excavations and there were detectable concentrations of lead, TPHd, ethylbenzene, total xylenes, 2-methylnaphthalene, and several other polynuclear aromatic hydrocarbons (URS 2010:2). The Nimbus Flat State Park site is currently an open case with oversight from the Sacramento County Environmental Management Department (EMD).

Arsenic in Soils There is potential for naturally occurring arsenic to be found in the soils at the Proposed Site. In a recent soils investigation of an area covered with mine tailings at the planned mixed-use development of Rio del Oro in Rancho Cordova, concentrations of arsenic were found to be 3 orders of magnitude above the preliminary remediation goal of 0.062 milligram per kilogram (mg/kg) established by EPA and 3 orders of magnitude above the California Human Health screening level (a system of values developed by Cal/EPA) of 0.07 mg/kg. The average concentration of arsenic in soil at the Rio del Oro development was 6.8 mg/kg, with the highest detected concentration being 15 mg/kg. However, concentrations of measured arsenic were within the range of theoretical upper-bound cancer risk considered by EPA to be safe and protective of human health (MWH 2007:8).

Alternative 1

Purity Oil/Delta Gunite/Brighton Oil Site (Brighton Oil) This information is summarized from the Phase I ES for the JOC Relocation Project (AECOM 2011b).

Immediately adjacent to the Alternative 1 Site's northwestern boundary is the Brighton Oil site, at the southeast corner of the intersection of White Rock Road and Kilgore Road. The Brighton Oil site is a former waste oil processing, septic waste disposal, and Class III waste disposal facility. Brighton Oil operated waste oil processing from 1955 until 1965. Purity Oil operated waste oil processing and septic waste disposal from 1965 to 1975, and two greenhouses were also present during this time. Delta Gunite operations included truck repairs and Class III construction debris disposal from 1976 to 1983 (Earth Technology Corporation 1987: Figures 2, 3, and 4). Former features of the Brighton Oil site include two unlined ponds used for the collection of wastewater and waste oil products, several aboveground storage tanks used for the storage and treatment of the oils, and aboveground and underground storage tanks containing 98% sulfuric acid solution used for reprocessing. In 1976, ownership of the property changed and operation of a Class III disposal facility began at the site, where inert waste, such as concrete, rock, and fill soil, was accepted for disposal. A truck repair shop also began operation at the site in 1976, which used 10 aboveground storage tanks (ASTs) whose contents are unknown.

The Brighton Oil Site is subdivided into four parcels, which from north to south are Parcel A, Parcel B, Parcel C, and Parcel D. Parcels A through C were investigated in the remedial investigation and during the health risk assessment (Bureau Veritas 2007b:1). Parcel D was not part of the remedial investigation during the health risk assessment (Bureau Veritas 2007b:1). These parcels coincide with the respective Sacramento County Assessors Parcels (Exhibit 3.7-2).

In 1984, the Central Valley RWQCB initiated a subsurface soil investigation at the site as part of an areawide effort to identify potential sources of groundwater contamination in the vicinity of Aerojet. Because VOCs were detected in soil and groundwater, the Brighton Oil site was then added to the California State Superfund Program Priority List. Investigation and assessment activities at the Brighton Oil site are ongoing, and DTSC is now the lead regulatory agency overseeing investigation activities at the site (Bureau Veritas 2007a:4).

Between 1984 and 2004, a series of subsurface investigations, site characterizations, and remediation reports was prepared for the site (Ecology and Environment 1984, Earth Technology Corporation 1987, Harding Lawson Associates 1988, Versar 2000a, Versar 2000b, Hicks 2001, Clayton 2006, Bureau Veritas 2007a). These studies are described in detail in AECOM (2011b).

In April 2009, Bureau Veritas submitted the *Final Draft of the Feasibility Study and Remedial Action Plan* for the Brighton Oil site to DTSC. A health risk assessment (HRA) was also completed as a component of the feasibility study and remedial action plan. The HRA was conducted to determine whether current site conditions would affect potential future uses of the site. Conclusions of the HRA included:

- determination that concentrations of some VOCs in groundwater beneath the site exceed MCLs, but site groundwater would not be used as a source of drinking water, and therefore groundwater is not an expected exposure pathway;
- detection of concentrations of benzene from three of 16 collected soil vapor samples warrants the use of personal protective equipment and ambient air monitoring during any future site development or excavation; and,
- determination that exposure to metals and carcinogens in soil would only be a factor if excavation, grading, or other construction activities occurred where disturbance of soil was anticipated.

The selected alternative remedial action included excavation and removal of affected soils from the Brighton Oil site, imposing land use restrictions on further uses for the site, development of a Sustainable Resource Management Plan (SRMP), and completion of a groundwater monitoring program that demonstrates that residual contamination will achieve water quality goals through monitored natural attenuation (Bureau Veritas 2009:ES-1).

Aerojet Superfund Site The Alternative 1 Site is located approximately 3 miles southwest of the main Aerojet facility, approximately 0.75 mile west of the boundary of the Inactive Rancho Cordova Test Site, and is within the boundary of Area 1 of the Western Groundwater Operable Unit (WGOU) of the Aerojet superfund site. Characterization of soil and groundwater beneath the Aerojet site has been ongoing since the early 1980s. Within Area 1 of the WGOU, depth to groundwater in the deeper C and D zone aquifers, encountered at depths of approximately 280 and 380 feet bgs. TCE was the most common chemical reported in groundwater detected in monitoring wells surrounding the Alternative 1 Site, and 1,4-dioxane, perchlorate, and NDMA have also been detected in surrounding wells (EPA 2001:11). Government oversight for the Aerojet Superfund site is shared by EPA—Region IX and Cal/EPA through the Central Valley RWQCB and DTSC.

Arsenic in Soils There is potential for naturally occurring arsenic to be found in the soils at the Alternative 1 Site that exceeds regulatory standards. In a recent soils investigation in an area covered with mine tailings approximately 0.75 mile east of the Alternative 1

Site at the planned development of Rio del Oro, concentrations of arsenic were found to be three orders of magnitude above the preliminary remediation goal of 0.062 mg/kg established by EPA and three orders of magnitude above the California Human Health screening level of 0.07 mg/kg. The average concentration of arsenic in soil at the Rio del Oro development was 6.8 mg/kg, with the highest detected concentration being 15 mg/kg. However, concentrations of measured arsenic were within the range of theoretical upperbound cancer risk considered by EPA to be safe and protective of human health (MWH 2007:8).

Environmental Database Records Review

Proposed Action

Federal and State Agency Records EDR provided regulatory information for the Proposed Site and surrounding properties using a database search. A copy of the EDR database report for the Proposed Site is provided in AECOM (2011b). A summary of the results of the EDR database search is presented below. A list of the databases searched and their respective search distances are provided AECOM (2011b).

Subject Property The Proposed Site was not listed in any of the databases included in the search performed by EDR.

Nearby Sites Nearby sites within the respective database search radii are summarized in AECOM (2011b). Aerojet General Corporation was the primary site identified in the search.

EPA Records Search A search of EPA's Enforcement and Compliance History Online (ECHO) and Envirofacts Data Warehouse (Envirofacts) was conducted. The ECHO database consists of EPA compliance history at a site. Envirofacts is a database search of EPA databases, including the CERCLIS database, which consists of sites being assessed under the Superfund program (NPL sites), hazardous waste sites, and potential hazardous waste sites. The Proposed Site was not identified on either database.

Alternative 1

Federal and State Agency Records EDR provided regulatory information for the Alternative 1 Site and surrounding properties using a database search. A copy of the EDR database report for the Alternative 1 Site is presented in AEOM (2011b). All database abbreviations and databases searched and their respective search distances are provided in the EDR report in AECOM (2011b).

Subject Property: The Alternative 1 Site was not listed in any of the databases included in the search performed by EDR.

Nearby Sites: Nearby sites within the respective database search radii are summarized in AECOM (2011b). Aerojet General Corporation was the primary site identified in the search.

EPA Records Search A search of EPA's ECHO and Envirofacts was conducted. The ECHO database consists of EPA compliance history at a site. Envirofacts is a database

search of EPA databases, including the CERCLIS database, which consists of sites being assessed under the Superfund program (NPL sites), hazardous waste sites, and potential hazardous waste sites. The Alternative 1 Site was not identified on either database.

Chain of Title and Environmental Liens/AULs

Proposed Action The Chain of Title for the Proposed Site dates to 1940 (Ameristar 2011a). Ownership information shows that the Natomas Company owned the property until October 1959, when Libby, McNeill and Libby, Inc. became the owners. In October 1969, Libby, McNeill and Libby, Inc. and the United States of America transferred ownership and Libby, McNeill and Libby, Inc. reacquired the property in November 1969. In September 1982, William Monson acquired the property from Libby, McNeill and Libby, Inc. and transferred ownership to the United States of America.

No environmental liens or AULs are identified for the Proposed Site (EDR 2010g). A copy of the lien search and AUL report is provided in AECOM (2011b). However, groundwater uses are restricted because of groundwater impacts emanating from Aerojet.

Alternative 1 The Chain of Title for the Alternative 1 Site dates to 1940 and is provided in the Chain of Ownership Report provided in AECOM (2011b) and Ameristar (2011b). Ownership information shows that the respective parcels that comprise the property are referenced as Portion 1 and Portion 2. Aerojet acquired Portion 1 from The Natomas Company in March 1960. Lonestar Lands, Inc. acquired Portion 1 in November 1976. William H Cook acquired Portion 1 in December 1984. Palisades GLC, LLC and KAC Developments acquired Portion 1 in May 2000. Portion 2 was acquired by Christine McDuffee from Herbert and Mildred McDuffee in May 1959. Arlene and Philip Kassis acquired Portion 2 in January 1976. Pacific Ready Mix, Inc acquired Portion 2 in November 1980. New York Trap Rock Corp, LS California, Inc., and Lone Star California, Inc. acquired Portion 2 in December 1987. California Ready Mix, Inc. acquired Portion 2 in April 2000. SBT Investments, Inc. acquired part of Portion 2 in November 2000. Parcel 4, LLC acquired part of Portion 2 in June 2000 and additional land in Portion 2 in February 2002.

No environmental liens or AULs are identified for the Alternative 1 Site (EDR 2011). Driveway and parking requirements and utility easements for the Alternative 1 Site are summarized in the lien search and AUL report. AULs are present for the adjacent Purity Oil/Delta Gunite/Brighton Oil Site that limit development to commercial/industrial land uses (DTSC 2010). The Purity Oil/Delta Gunite/Brighton Oil Site was subject to an environmental lien to cover DTSC oversight of the environmental response; the lien was in place from 2000 until 2010 when it was released (DTSC 2000). Additionally, groundwater uses are restricted because of contaminated groundwater emanating from Aerojet.

City directory information for the Alternative 1 Site is not available, as discussed in the Versar Phase I ES (Versar 2000b:5).

Summary of Recognized Environmental Conditions

Proposed Action The site visit and records searches for the Proposed Site did not find evidence of unauthorized disposal or accumulation of potentially hazardous wastes. No staining or discoloration of soils or discoloration of ponded water, other than that due to suspended sediment, was observed.

The following historic recognized environmental condition (HREC) was identified (AECOM 2011b):

- The northern and central portions of the site had received discharges of industrial waste water from a nearby olive plant over a period from 1917 to 1976. This area, the HAP, was investigated and received regulatory closure in 1989. Remnants of the ponds are present in the northern part of the site. The ponds and historic discharges represent a HREC. Because the site had been characterized and received regulatory closure, it is not a current REC.

The following RECs were identified:

- The groundwater beneath the site has been adversely affected by aerospace manufacturing and testing operations at Aerojet. Human Health Risk Assessment (HHRA) results show adverse health effects would result from groundwater ingestion. Potential health affects above the *de minimus* level for exposures via the vapor intrusion pathway for volatilization of chemicals in groundwater are present. The ongoing groundwater impacts represent the primary environmental concern for the site and these impacts represent a current REC.

- There is the potential for heavy metals concentrations (e.g., mercury, arsenic) that exceed health screening levels in the dredge tailings. This potential for elevated naturally occurring metals represents a current REC.

No other nearby sites, including former UST sites, appear to represent a source of environmental impacts on the site.

Alternative 1 The Alternative 1 Site is adjacent to the former Purity Oil/Delta Gunite/Brighton Oil site, which has documented soil, soil vapor, and groundwater impacts associated with prior operations and disposal practices. The most heavily affected portion of the Brighton Oil site is on the northwest corner of the existing property, north of the potential JOC building location. Soil contaminated with petroleum hydrocarbons was identified on Parcel D (APN 072-0260-049), which is a portion of the Alternative 1 Site. Soil removal was conducted; however, DTSC has remaining concerns with respect to the potential for other contaminants present that are associated with the former Purity Oil/Delta Gunite/Brighton Oil site because assessment and remediation focused only on petroleum hydrocarbons. In addition, groundwater beneath Parcel D was not assessed for potential contamination.

The following RECs were identified during reconnaissance of the Alternative 1 Site.

- The groundwater beneath the site has been adversely affected by aerospace manufacturing and testing operations at Aerojet. HHRA results show adverse health effects would result from groundwater ingestion. The groundwater impacts represent the primary environmental concern for the site. Based on these impacts, groundwater production is restricted. The depth to groundwater appears to reduce the potential health risks via the vapor intrusion pathway. However, site-specific data concerning potential soil vapor impacts resulting from the groundwater impacts does not exist. The groundwater impacts represent a current REC.

- Potential impacts on soils by chemicals associated with the former Purity Oil/Delta Gunite/Brighton Oil site may be present. In addition, groundwater has not been assessed. These issues represent current RECs.

- There is the potential for heavy metals concentrations (e.g., mercury, arsenic) that exceed health screening levels in the dredge tailings. This potential for elevated naturally occurring metals represents a current REC.

No other nearby sites, including former UST sites, appear to represent a source of environmental impacts on the site.

Regulatory Setting

Federal Plans, Policies, Regulations, and Laws The following Federal laws related to hazards and hazardous materials are relevant to the JOC Relocation Project and are described in detail in Section 5.6, "Compliance with Related Laws, Rules, Regulations, and Executive Orders":

- Resource Conservation and Recovery Act;

- Comprehensive Environmental Response, Compensation, and Liability Act;

- Occupational Safety and Health Act; and

- Hazardous Materials Transportation Act.

State Plans, Policies, Regulations, and Laws

Hazardous Waste Control Act The California Hazardous Waste Control Act governs hazardous waste management and cleanup in the State (Health and Safety Code, Chapter 6.5–6.98). The act mirrors the RCRA and imposes a "cradle to grave" regulatory system for handling hazardous waste in a manner that protects human health and the environment. It requires all businesses to report the quantity and locations of hazardous materials on an annual basis if the business stores: (a) above 55 gallons of a liquid or 500 pounds of a solid hazardous material, (b) above 200 cubic feet of a compressed gas, or (c) a radioactive material that is handled in quantities for which an emergency plan is required. Businesses falling within these limits must prepare a Hazardous Materials Business Plan (HMBP), which includes spill prevention, containment, emergency response measures, and a contingency plan.

County Environmental Health Departments and Cal/EPA Certified Unified Program Agencies assume responsibility for enforcing local hazardous waste reporting requirements. Sites that store, handle, or transport specified quantities of hazardous materials are inspected annually. A Cal/EPA agency, DTSC regulates the generation, transportation, treatment, storage, and disposal of hazardous waste under the RCRA and the State Hazardous Waste Control Act.

Hazardous Substances Account Act California enacted the Hazardous Substances Account Act (1981) to establish state authority to clean up hazardous substances releases, compensate persons injured from exposure to hazardous substances, and provide funds for payment of the State's mandatory 10% share of cleanup cost under the Federal Superfund law. Cal/EPA administers the State Superfund program and receives assistance from the California Department of Public Health.

Worker Safety Requirements Regulations pertaining to the use of hazardous materials in California workplaces are provided in CCR Title 8, and include requirements for safety training, availability of safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA standards are more stringent than Federal OSHA regulations.

As described above, Cal/OSHA assumes primary responsibility for developing and enforcing workplace safety regulations in the state. Cal/OSHA enforces hazard communication program regulations that contain training and information requirements, including procedures for identifying and labeling hazardous substances, communicating information related to hazardous substances and their handling, and preparing health and safety plans to protect workers and employees at hazardous waste sites. The hazard communication program requires that Material Safety Data Sheets be available to employees and that employee information and training programs be documented.

Regional and Local Plans, Policies, Regulations, and Ordinances The JOC Relocation Project is jointly proposed by Reclamation, a Federal agency, and DWR, a State agency. The Proposed Site is Federal property owned by Reclamation. A Federal agency operating on Federal land is not required to comply with regional or local plans, policies, regulations, or ordinances. However, a Federal agency normally will conform with local regulations and State laws that do not interfere with the agency's ability to "carry out the purposes of the government," such as building, health, and safety codes (*Fort Leavenworth R.R. v. Lowe*, 114 U.S. 525 [1885]).

Activities at the Proposed Site would not be required to comply with regional or local regulations, but Reclamation has committed to a "good neighbor" policy and would conform with those regulations to the extent that such compliance would not conflict with or hinder the mission and purposes of the agency or the departments located at the site. Activities at the Alternative 1 Site would take place on private property and would require full compliance with all regional and local regulations.

Sacramento County General Plan Goals and policies of the *1993 County of Sacramento General Plan* (Sacramento County 1993) related to hazards and hazardous materials that apply to the Proposed Action and the alternatives under consideration are listed below:

- **Policy HM-4:** The handling, storage, and transport of hazardous materials shall be conducted in a manner so as not to compromise public health and safety standards.
- **Policy HM-7:** Encourage the implementation of workplace safety programs and to the best extent possible ensure that residents who live adjacent to industrial or commercial facilities are protected from accidents and the mishandling of hazardous materials.
- **Policy HM-10:** Reduce the occurrences of hazardous material accidents and the subsequent need for incident response by developing and implementing effective prevention strategies.
- **Policy HM-11:** Protect residents and sensitive facilities from incidents which may occur during the transport of hazardous materials in the County.
- **Policy HM-14:** Support local enforcement of hazardous materials regulations.

Sacramento County General Plan Update Sacramento County is in the process of preparing a draft *Sacramento County General Plan Update* (Sacramento County 2010) and EIR to plan for growth in the period 2010–2030. Until that EIR has been certified and the update has been adopted by the Sacramento County Board of Supervisors, the 1993 general plan remains in effect. Following receipt of a third-party review in December 2010, hearings on the general plan began in spring 2011 and are ongoing.

City of Rancho Cordova General Plan Goals and policies of the *Rancho Cordova General Plan* (City of Rancho Cordova 2006a) related to hazards and hazardous materials that apply to the Alternative 1 Site and the No-Action Alternative are listed below:

- **Policy S.1.1:** Maintain acceptable levels of risk of injury, death, and property damage resulting from reasonably foreseeable safety hazards in Rancho Cordova.
- **Policy S.5.1:** Work with public agencies and private companies to identify and work towards elimination of potential hazardous releases through compliance with State and Federal law.
- **Policy S.5.5:** Separate hazardous or toxic materials from the public.
- **Policy S.9.1:** Cooperate with the Sacramento Metropolitan Fire Department (SMFD) to reduce fire hazards, assist in fire suppression, and ensure efficient emergency medical response.
- **Policy S.9.2:** Provide infill development with adequate off-site improvements to meet onsite fire flow requirements.

3.7.2 Environmental Consequences and Mitigation Measures

Methods

This analysis addresses potential impacts associated with implementation of the project with respect to hazards and hazardous materials. This analysis is based on a review of planning documents applicable to the project study area, review of environmental assessment and remediation reports for the project area (AECOM 2011b), and field reconnaissance. The results of the Phase I ES (AECOM 2011b) were used to analyze the potential project effects identified in this section.

A regulatory database search was conducted for both the Proposed Site and the Alternative 1 Site. The purpose of such a search was to identify sites that are associated with the documented use, generation, storage, or release of hazardous materials or petroleum products. The respective database reports also include regulatory lists of known or potential hazardous waste sites, landfills, hazardous waste generators, and disposal facilities, in addition to sites under investigation. Information provided in the database search was obtained from publicly available sources as summarized in the sections entitled “Federal and State Agency Records” and in the respective EDR Database Reports (AECOM 2011b).Specific reports for sites identified from the database search were obtained from online Federal and State regulatory agencies. California Environmental Quality Act (CEQA) documents were obtained from the Sacramento County Department of Environmental Review and the city of Rancho Cordova.

Criteria for Determining Significance of Effects

Determinations of significance in this EIS/EIR are based on the environmental checklist in Appendix G of the State CEQA Guidelines, as amended. These determinations are provided pursuant to CEQA. The Proposed Action and alternatives under consideration would be considered to have a significant impact related to hazards and hazardous materials if they would:

- create a significant hazard to the public or environment through the routine transport, use, or disposal of hazardous materials;
- 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;
- emit hazardous emissions or handle hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school;
- be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code 65962.5, and as a result, would it create a significant hazard to the public or the environment;
- result in a safety hazard for people residing or working in a project area that is located within 2 miles of a public airport, public use airport, or a private airstrip;

- impair implementation of or physically interfere with an adopted emergency response plan or emergency evaluation plan; or
- 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.

Issues Not Addressed Further in This EIS/EIR

Risks to Existing or Proposed Schools Caused by Hazardous Emissions or Materials—No existing or proposed schools are located within 0.25 mile of the Proposed or Alternative 1 Site. Therefore, this issue is not discussed further in this EIS/EIR.

Risks to People Residing or Working within 2 Miles of an Airport—Both the Proposed and Alternative 1 Sites are located outside of the Mather Airport Safety Zones (City of Rancho Cordova 2006b:Figure 4.1-5) and no other airports or airstrips are located within 2 miles of the Proposed or Alternative 1 Site. Therefore, this issue is not discussed further in this EIS/EIR.

Impairment of or Interference with Emergency Response or Evacuation Plan—Neither the Proposed or Alternative 1 Sites would impair implementation of or interfere with an adopted emergency response plan or evacuation plan. Additionally, emergency response and evacuation plans would be prepared for the selected site as part of standard Federal and State requirements. Therefore, this issue is not discussed further in this EIS/EIR.

Risk to People or Structures Caused by Wildland Fire—The *Ranch Cordova General Plan Draft Environmental Impact Report* (City of Rancho Cordova 2006b:2.0-42) indicates wildland fires are a less-than-significant concern for the area that includes the Alternative 1 Site. The *1993 County of Sacramento General Plan* Safety Element (Sacramento County 2009:1) indicates the county is less vulnerable to this type of hazard than surrounding counties with sparse and/or hillside development. The California Department of Forestry and Fire Protection's Fire Hazard Severity Zones map for Sacramento County (CAL FIRE 2007) shows the Alternative 1 and Proposed Sites are not located in Very High Fire Hazard Severity Zones. Therefore, this issue is not discussed further in this EIS/EIR.

Impact Analysis

See Table 3.0-2 for a summary of impacts and mitigation measures for Alternative 2 (incorporated by reference from the Mather Field Specific Plan FEIR).

Impact 3.7-1: Potential Hazards Associated with Routine Transport, Use, or Disposal of Hazardous Materials or Accident Conditions Involving the Release of Hazardous Materials into the Environment

No-Action

Under the No-Action Alternative, no construction activities would occur, and facility operations would continue at the Interim JOC; therefore, the No-Action

Alternative would not expose people or the environment to significant risk as a result of the routine transport, use, or disposal of hazardous substances during site construction or operation. The No-Action Alternative also would not expose people or the environment to significant risk as a result of the release of hazardous materials during project construction or operation. **No direct** or **indirect** impact would occur.

Proposed Action and Alternative 1

Project construction would involve the routine storage, use, and transport of potentially hazardous materials (e.g., fuel, lubricants, paint, oil, and solvents) that are commonly used during construction activities. Quantities of hazardous materials would be stored at the project site during project construction. On-site waste collection areas would contain and store hazardous waste materials temporarily, pending transportation and off-site disposal to a facility permitted to handle such waste.

Project construction could result in the accidental release of hazardous materials through spills or accidents. Potentially hazardous materials that could be released would include fuels (gasoline and diesel), oils and lubricants, paints, solvents, and building materials commonly used in facility construction and construction-related maintenance activities. Spills or releases would have the potential to affect both humans (adjacent residents and construction workers) and the environment (soil, groundwater, surface water). Additionally, there is potential for runoff from the construction site to affect surface water quality (described in Impacts 3.8-1 and 3.8-3 in Section 3.8, “Hydrology and Water Quality”).

During project operation, potentially hazardous materials may be stored and used on-site as part of facility operations. Hazardous wastes generated would be stored temporarily pending transport and off-site disposal.

Facility operations may include use of hazardous materials as part of routine activities. Spills or releases would have the potential to affect humans (adjacent residents, building occupants, visitors) and the environment (soil, groundwater, surface water).

Before grading permits are issued, Reclamation and DWR would also obtain coverage under the California State Water Resources Control Board’s National Pollutant Discharge Elimination System stormwater permit for general construction activity (Order 2009-0009-DWQ), including preparation and submittal of a project-specific storm water pollution prevention plan (SWPPP) at the time the NOI to discharge is filed, as described in Impact 3.8-1 in Section 3.8 “Hydrology and Water Quality.” The SWPPP will contain Best Management Practices (BMPs) related to industrial activities (industrial SWPPP). A copy of the approved storm water pollution prevention plan (SWPPP) would be maintained and available at all times on the construction site. BMPs for transportation, use, and disposal of hazardous substances and storage and use of hazardous substances, as well as Federal, State, and local safety codes and procedures

related to hazardous material transport, handling, and disposal, would be required and would minimize the risk of a hazardous materials or hazardous waste release. During project construction, a Construction General Permit (including specific BMPs, as well as numeric effluent levels and numeric action levels to achieve water quality standards [SWRCB 2009:3]) with implementation of BMPs would be required and would reduce potential run-off related impacts. The **direct and indirect** impact would be **potentially significant**.

Mitigation Measure 3.7-1: Implement Hazardous Materials Control and Response Measures

No-Action
No mitigation measures are required.

Proposed Action and Alternative 1
Reclamation and DWR will implement the following measures to control access to and management of hazardous materials:

a. Require that the construction contractors store, handle, and transport hazardous materials and wastes in compliance with applicable Federal, State, and local laws during project construction.

b. Require that the storage, handling, and transport of hazardous materials and wastes are in compliance with applicable Federal, State, and local laws during project operations.

c. Require that all chemical storage and loading areas are equipped with proper containment and spill response equipment. BMPs to be implemented may include, but are not limited to, use of secondary containment in mixing and storage areas, availability of spill kits and spill containment booms, and appropriate storage containers for containment of the materials generated during the spill response.

d. Develop a construction-related HMBP, chemical standard operating procedures (SOPs), protocols, and contingency plans to be implemented by the construction contractors to ensure that proper response procedures would be implemented in the event of spills or releases during project construction. Specifically, the HMBP and SOPs shall describe the procedures for properly storing and handling fuel and chemicals on site, the required equipment and procedures for spill containment, required personal protective equipment (PPE), and the measures to be used to reduce the likelihood of releases or spills during fueling or vehicle maintenance activities during construction. The field manager in charge of operations and maintenance activities will be responsible for ensuring that these procedures are followed at all times during construction.

e. Develop an operations-related HMBP, chemical SOPs, protocols, and contingency plans to ensure that proper response procedures would be

implemented in the event of spills or releases during project operations. Specifically, the HMBP and SOPs shall describe the procedures for properly storing and handling chemicals on-site, the required equipment and procedures for spill containment, required PPE, and the measures to be used to reduce the likelihood of releases or spills during facility operation. The facility maintenance manager in charge of operations and maintenance activities shall be responsible for ensuring that these procedures are followed at all times during project operations.

Responsibility: Reclamation and DWR

Timing: Before construction (for parts a, c, and d) and before facility operations commence (for parts b, c, and e)

Implementing Mitigation Measure 3.7-1 would reduce this direct and indirect impact to a **less-than-significant** level for both the Proposed Action and Alternative 1 because adoption of BMPs, a HMBP, and adherence to applicable regulations will address the potential hazards associated with transportation, use, and disposal of hazardous materials and release of hazardous materials.

Impact 3.7-2: Potential Risk of Significant Hazard to the Public or the Environment Resulting from Location on a Site Included on a Hazardous Materials Sites List

No-Action
Under the No-Action Alternative, no construction activities or facility operations would occur; therefore, the No-Action Alternative would not expose people or the environment to significant risk associated with location on a known hazardous materials site. **No direct** or **indirect impact** would occur.

Proposed Action
As described above under "Environmental Database Records Review," the Proposed Site includes the former HAP area and is located above a portion of the Aerojet groundwater plume. Nearby Underground Storage Tank (UST) facilities are identified in regulatory databases. The HAP received regulatory closure from DTSC, and groundwater remediation is on-going. Details of these sites are provided below.

The HAP (aka Libby Ponds) were previously assessed for potential environmental impacts and received DTSC's determination of No Further Action (NFA) in January 1989. The HAP site was delisted at this time. DTSC determined that remedial action was not necessary based on the assessment results. The ponds received olive-processing plant process wastes from 1917 to 1976 that were transferred by open ditch and then pumped to nine ponds. The waste stream included salt, sulfur dioxide, sodium hydroxide, lime, ferrous gluconate, and lactic and acetic acid. Soil sampling identified elevated metals (aluminum and iron) concentrations that were considered to be naturally occurring concentrations and not related to the ponds.

The Proposed Site overlies areas of historical groundwater contamination resulting from aerospace manufacturing and testing operations at Aerojet; those areas are collectively identified as Zone 1 of the Perimeter Groundwater Operable Unit (OU-5). The chemicals present in the groundwater include VOCs, semivolatile organic compounds (SVOCs), NDMA, and perchlorate (Aerojet 2005:19). Zone 1 encompasses the groundwater flow at and beyond the northwestern Aerojet property boundary (Aerojet 2005:1).

The highest TCE concentrations (up to 2,500 micrograms per liter) in Zone 1 are in the vicinity of the Nimbus Fish Hatchery and the Proposed Site (Aerojet 2005:21 and Figure A-37). Groundwater is approximately 20–30 feet bgs in this area (Aerojet 2005:15). Groundwater extraction and treatment systems are currently in operation, with wells located at the boundary of Aerojet (GET-D) and along the north and south of the American River (ARGET); these systems are reducing the historical groundwater impacts (Aerojet 2005:20).

Results of the Baseline Risk Assessment (Aerojet 2009) identified incidental lifetime cancer risks (ILCRs) exceeding EPA guidelines ($1x10^{-4}$ to $1x10^{-6}$) for groundwater in all exposure pathways (Aerojet 2009:2-38). EMD manages a "Consultation Zone" that requires all parties to consult with DTSC and the Central Valley RWQCB before issuing a well permit within 2,500 feet of chemicals in groundwater around the Aerojet site (Aerojet 2005:4). This serves as a control to reduce ingestion of affected groundwater.

Vapor intrusion risks for Zone 1 commercial receptors were all less than the hazard index (HI) of 1 for noncarcinogenic exposures (Aerojet 2009:2-39). Estimated commercial ILCRs ranged from $7x10^{-9}$ to $1x10^{-6}$, with ILCRs greater than the *de minimus* risk of $1x10^{-6}$ at 10 of 48 locations within Zone 1 (Aerojet 2009:2-39). The site lies within the area where the ILCR is greater than the *de minimus* risk level (Aerojet 2009:Figure 2-7a). TCE is the primary contributor to ILCRs greater than the *de minimus* risk of $1x10^{-6}$ (Aerojet 2009:2-39). Although the vapor intrusion risks are within the range typically considered acceptable for commercial land uses ($1x10^{-6}$ to $1x10^{-4}$), the estimated risk exceeds the *de minimus* level.

As described in "Summary of Recognized Environmental Conditions," there is the potential for heavy metals concentrations (e.g., mercury, arsenic) that exceed health screening levels in the dredge tailings.

Overall, implementing the Proposed Action could result in exposure of occupants to significant hazards from contaminated groundwater if groundwater wells were used and from contaminated soil in the area of mine tailings. This would be a **significant direct** impact. No indirect impact would result.

Alternative 1

As described above under "Environmental Database Records Review," the Alternative 1 Site is adjacent to the former Purity Oil/Delta Gunite (aka Brighton

Oil), which has undergone previous environmental assessment and has land use restrictions (for Parcels A, B, and C) based on the presence of previous environmental impacts associated with hazardous materials releases to site soils. The Alternative 1 Site is also located above a portion of the Aerojet groundwater plume within the Western Groundwater Operable Unit (WGOU OU-3). Nearby UST facilities are identified in regulatory databases. The proposed JOC footprint does not lie within the parcels with land use restrictions, but is adjacent to these areas.

The ROD for the WGOU OU-3 identifies carcinogenic and noncarcinogenic health risks associated with ingestion of affected groundwater (EPA 2001:Table 2-4D and Table 2-5D).

Depth to VOC-affected groundwater beneath the Alternative 1 Site is approximately 90 to 100 feet bgs (EPA 2001), and the vapor intrusion risk associated with the affected groundwater would be minimal.

The potential to encounter contaminated soils at the Alternative 1 Site would be high because of known hazardous materials releases into soils at the Purity Oil/Delta Gunite (aka Brighton Oil) location and the prior assessment and removal of petroleum-affected soils from APN 072-0260-049.

As described in "Summary of Recognized Environmental Conditions," there is a potential for heavy metals concentrations (e.g., mercury, arsenic) that exceed health screening levels in the dredge tailings.

Overall, implementing Alternative 1 could result in exposure of occupants to significant hazards from contaminated groundwater if groundwater wells were used and from contaminated soil in the area of Purity Oil/Delta Gunite location or mine tailings. This **direct** impact would be **significant**. No indirect impact would result.

Mitigation Measure 3.7-2: Reduce Potential Hazardous Materials Exposure Risks during Construction and Operation

No-Action
No mitigation measures are required.

Proposed Action
Reclamation and DWR or their contractor will implement the following measures to reduce potential exposure risks during construction and operation:

PA-a: Conduct a Phase II ES that will further evaluate potential RECs that have been identified in connection with the Proposed Site. Specifically, the Phase II ES will evaluate the potential for adverse health effects from exposure to elevated metal concentrations in soils and/or dredged materials within the project footprint of disturbance during construction activities and the potential for vapor intrusion from existing groundwater

contamination into buildings constructed as part of the project. Reclamation and DWR or its contractor will consult with EPA, Central Valley RWQCB, and DTSC on any adverse health effect findings to determine the appropriate remedial measures, including remediation or protective design measures to adequately reduce health effects.

PA-b: Require that the project design incorporates recommended remediation or protective design measures into construction planning and building design to adequately reduce the potential adverse health effects from exposure to elevated metal concentrations in soils or vapor intrusion based on further analysis and recommendations developed during the Phase II ES.

PA-c: Develop and implement a construction health and safety plan and soil management plan that will include provisions for encountering potentially contaminated soils, and construction monitoring will be conducted during earthwork activities that include observations for potential soils impacts such as staining and odors. The soil management plan will also identify soil stockpiling procedures and a sampling strategy for waste characterization and disposal. Any affected soils will be disposed of in accordance with applicable Federal, State, and local regulations. Reclamation and DWR shall only allow workers trained and certified under OSHA 29 CFR 1910.120 and Cal/OSHA be allowed to work within the area of affected soils.

PA-d: Obtain the project's water supply from a local water purveyor and not from a new on-site well source as required under the Consultative Zone.

PA-e: Notify Aerojet, EPA, and the Central Valley RWQCB prior to site grading so that existing Aerojet monitoring wells within the site can be protected from damage during grading and construction, and modified to be accessible after completion of grading. In the event that a given well location conflicts with the proposed site design, DWR will coordinate with Aerojet, EPA, and the Central Valley RWQCB regarding well decommissioning in accordance with State and County guidelines, and replaced with a new well either before construction or after completion of grading and construction. Applicable agency approvals and permits will be obtained for any wells that are modified or decommissioned and replaced to accommodate construction.

Alternative 1

Reclamation and DWR or their contractor will implement the following measures to reduce potential exposure risks during construction and operation:

A1-a: Conduct a Phase II ES that will further evaluate potential RECs that have been identified in connection with the Alternative 1 Site. Specifically, the Phase II ES will evaluate the potential for adverse health effects from exposure to elevated metal concentrations in soils and/or dredged

materials within the project footprint of disturbance during construction activities and the potential for vapor intrusion from existing groundwater contamination into buildings constructed as part of the project. Reclamation and DWR or its contractor will consult with DTSC and the Central Valley RWQCB on any adverse health effect findings to determine the appropriate remedial measures, including remediation or protective design measures to adequately reduce health effects.

A1-b: Require that the project design incorporate recommended remediation or protective design measures into construction planning and building design to adequately reduce the potential adverse health effects from exposure to elevated metal concentrations in soils or vapor intrusion based on further analysis and recommendations developed during the Phase II ES.

A1-c: Obtain the project's water supply from a local water purveyor and not from a new on-site well source as required under the Consultative Zone.

A1-d: The proposed JOC footprint includes a parking area in one of the areas assessed and where previous contaminated soils were identified during the Purity Oil/Delta Gunite (aka Brighton Oil) site assessment activities. In addition, there could be unknown areas of contaminated soils on the proposed JOC facility. Therefore, Reclamation and DWR will develop and implement a construction health and safety plan and soil management plan that will include provisions for encountering potentially contaminated soils, and construction monitoring will be conducted during earthwork activities that include observations for potential soils impacts such as staining and odors. In the event affected soils are encountered, those soils will be segregated and sampled for potential contaminants associated with the Purity Oil/Delta Gunite location (e.g., petroleum hydrocarbons, VOCs, SVOCs, and metals). The soil management plan will also identify soil stockpiling procedures and a sampling strategy for waste characterization and disposal. Any affected soils will be disposed of in accordance with applicable Federal, State, and local regulations. Reclamation and DWR will allow only workers trained and certified under OSHA 29 CFR 1910.120 and Cal/OSHA to work within the area of affected soils.

Responsibility: Reclamation and DWR

Timing: Before construction

Implementing Mitigation Measures 3.7-2-PA-a through 3.7-2-PA-d or Mitigation Measures 3.7-2-A1-a through 3.7-7-2-A1-d would reduce impacts associated with groundwater ingestion to a **less-than-significant** level for both the Proposed Action and Alternative 1 because these measures would eliminate the potential ingestion of water from on-site contaminated groundwater.

Implementing Mitigation Measure 3.7-2-PA-b or Mitigation Measure 3.7-2-A1-b would reduce the impact associated with vapor intrusion to a **less-than-significant** level for both

the Proposed Action and Alternative 1 because the vapor barrier would reduce potential vapor migration to indoor air.

Implementing Mitigation Measure 3.7-2-PA-c or Mitigation Measure 3.7-2-A1-d would reduce the impact associated with potential exposure of construction workers and residents to hazardous materials to a **less-than-significant** level for both the Proposed Action and Alternative 1 because a construction health and safety plan and soil management plan would be in place.

Implementing Mitigation Measure 3.7-2-PA-e would reduce the impact associated with potential damage to Aerojet monitoring wells during construction to a **less-than-significant** level for the Proposed Action.

Implementing Mitigation Measure 3.7-2-A1-d would reduce the impact associated with previously unidentified soils contamination to a **less-than-significant** level for Alternative 1 based on identification and segregation/removal of any contaminated soils identified during construction. This measure is not applicable to the Proposed Action.

Impact 3.7-3: Potential Risk of Significant Hazard to the Public or the Environment Associated with Project Location within 2 Miles of an Airport

No-Action
Under the No-Action Alternative, no construction activities or facility operations would occur; therefore, the No-Action Alternative would not expose people or the environment to significant risk associated with location of a site within 2 miles of an airport. **No direct** or **indirect impacts** would occur.

Proposed Action
No airports or airstrips are located within 2 miles of the Proposed Site. Therefore, **no direct** or **indirect impacts** would occur.

Alternative 1
The Alternative 1 Site is located approximately 1.5 miles from Mather Airport and within the over flight zone safety area for the airport. Height restrictions within the overflight zone are 150 feet. The maximum height of proposed structures at the Alternative 1 Site would be less than 150 feet; therefore, the risk of obstruction hazards would be low. Construction activities could create glare or distracting lights and generate dust or smoke, potentially creating flight hazards at the Mather airport. In addition, the proposed radio antenna may create navigational aid radio frequency interference or issues with Global Positioning System (GPS) equipment around airports. The electrical interference could potentially be detrimental to the operation of aircraft.

Because the project is located within the overflight zone safety area for the Mather Airport, the project would be reviewed by the Airport Land Use Commission to determine whether project features or construction activities could pose a hazard to aircraft and/or the public on the ground.

The project would be subject to the licensing requirements of the Federal Communications Act for the construction and operation of the radio antenna. The Federal Communications Commission requires antenna structure owners to first file a Notice of Proposed Construction or Alteration (Form 7460-1) with the Federal Aviation Administration and obtain a valid determination of "no hazard" from the Federal Aviation Administration before registering with the Federal Communications Commission for a license.

With these regulations in place, the potential risk of hazards would be minimized and the **direct** impact would be **less than significant**. **No indirect impact** would occur.

Mitigation Measure: No mitigation is required.

Residual Significant Impacts

With implementation of the mitigation measures described above, no residual significant impacts associated with the Proposed Action or Alternative 1 related to hazards and hazardous materials would occur.

3.7.3 Cumulative Impacts

The geographic scope for analyzing the cumulative effects of hazards and hazardous materials in the context of the extent to which local and regional activities can affect hazardous materials and waste issues in Sacramento County. Local and regional issues with respect to hazardous waste include transportation and disposal, as well as potential for spills or releases related to construction and operations and potential for adverse effects to human health and to the environment resulting from spills or releases.

The impact analysis included in the "Environmental Consequences and Mitigation Measures" section indicates that potentially hazardous materials used during project construction and operation could have the potential of release or spill, which could present safety hazards to workers or the environment. Impacts related to the generation of hazardous materials during project construction and operation would also be potentially significant. Potentially significant impacts involving localized exposure to hazardous materials during construction or operation activities could result in localized hazardous material spills or incidents. Exposure to chemicals present in the underlying groundwater via the vapor intrusion pathway could present a potential risk to workers during project operations. These impacts are considered localized, and Mitigation Measures 3.7-1 and 3.7-2 would reduce these impacts to a less-than-significant level. The related projects could result in the same types of impacts related to hazards and hazardous materials identified above. However, hazardous materials are regulated by numerous Federal, State, and local laws and regulations, and all of these impacts are considered localized and thus would not contribute considerably to any adverse effects of other projects in the region. Therefore, the project would not result in a cumulatively considerable incremental contribution to a significant cumulative impact.

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3.8 Hydrology and Water Quality

3.8.1 Affected Environment

Environmental Setting

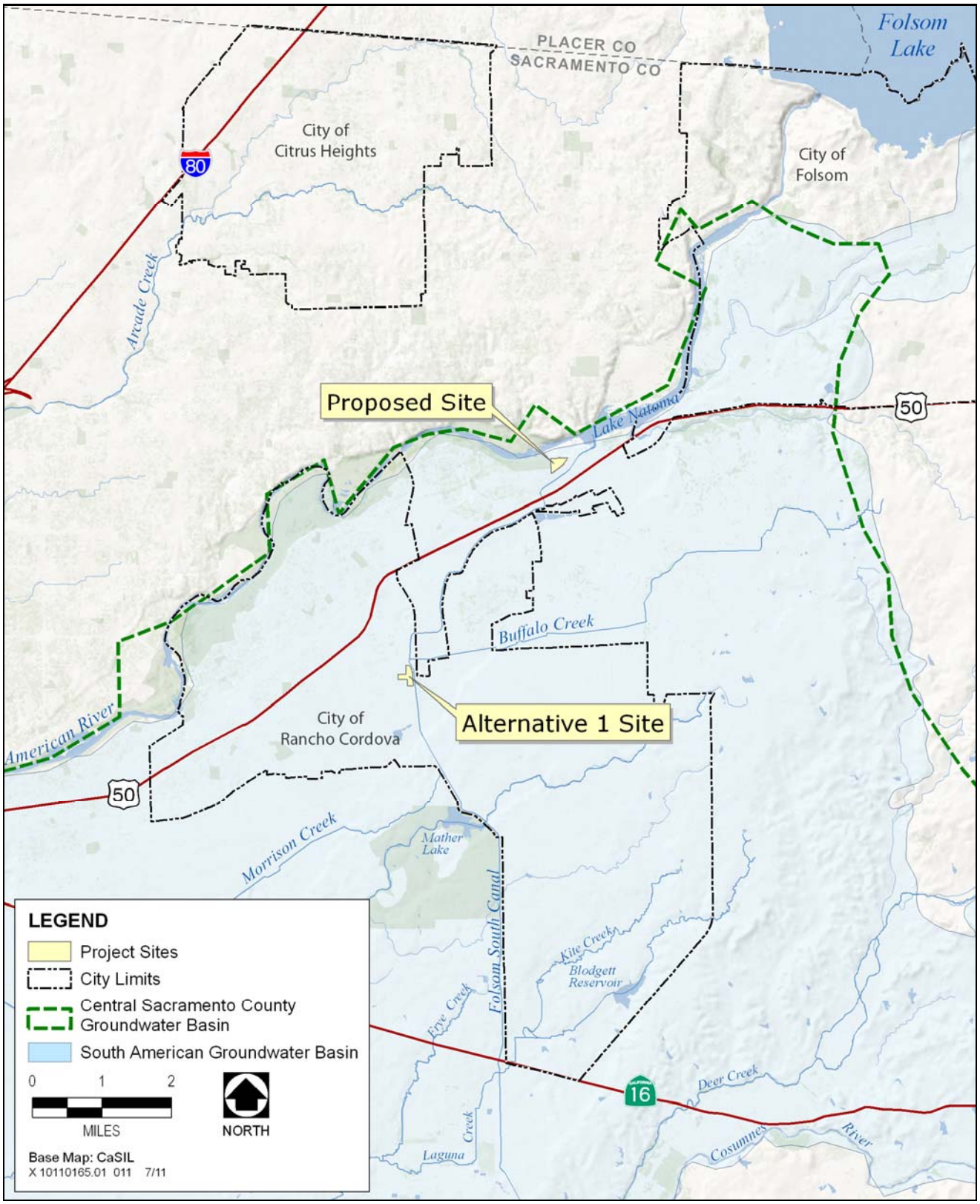
The Proposed Site and the Alternative 1 Site are located in north-central Sacramento County, with the Proposed Site located in unincorporated Sacramento County and the Alternative 1 Site located in the city of Rancho Cordova. The project sites lie within the eastern edge of the Sacramento Valley, which is a nearly flat alluvial plain that extends almost 180 miles from the Sacramento–San Joaquin Delta on the south to Redding on the north. The climate in the Sacramento Valley is characterized by warm, dry summers with an almost complete absence of rain and mild winters with relatively light rains.

The Proposed Site and the Alternative 1 Site are situated south of the American River and southwest of Lake Natoma (Exhibit 3.8-1). The Proposed Site is located between the American River and U.S. Highway 50 (U.S. 50), adjacent to the Upper Sunrise Recreation Area of the American River Parkway and the California Department of Fish and Game (DFG) Nimbus Fish Hatchery. The Proposed Site varies in elevation, with numerous hills and ravines. Existing vegetation at the site is dispersed, with groupings of trees and abundant rocks. Mine tailings are found throughout the site and intact remnants of dredge spoils from gold mining on the American River remain on a portion of the site.

The Alternative 1 Site is located south of U.S. 50, with the Folsom South Canal running along the eastern edge. The Alternative 1 Site is relatively flat, with commercial/office land uses on surrounding parcels. A residential development is located to the south of the site. Scattered debris, including concrete, soil piles, and polyvinyl chloride (PVC) pipes, is present on the site. As on the Proposed Site, indications of past mining activities, including altered topography and cobble piles, are evident on the Alternative 1 Site. The Alternative 1 Site consists of undeveloped land, with no structures.

Surface Water Hydrology and CVP Facilities The three forks of the upper American River originate high in the Sierra Nevada and drain approximately 1,875 square miles of mountainous terrain before converging at Folsom Reservoir. Folsom Dam and Reservoir were constructed to regulate the water releases for power generation. Nimbus Dam, which forms Lake Natoma, regulates water released from the Folsom Reservoir hydroelectric facility. The entrance facilities to the Folsom South Canal are located along the south shore of Lake Natoma, immediately upstream from Nimbus Dam.

The lower American River runs from below Nimbus Dam, downstream 23 miles to its confluence with the Sacramento River, and is designated as “Recreational” under both the California Wild and Scenic Rivers Act and the National Wild and Scenic Rivers Act. The highly regulated river system is contained by natural bluffs, terraces, and constructed



Source: Sacramento County 2008a

Exhibit 3.8-1: Regional Hydrologic Features

levees. Approximately 0.25 mile downstream of Nimbus Dam, located on the south bank of the American River, is a weir that directs the upstream migration of spawning Chinook salmon and steelhead into the Nimbus Fish Hatchery. The American River Parkway, a riparian floodplain corridor, surrounds the river channel. Bluffs naturally confine the upstream reach of the lower American River north of River Bend Park. At this point, the lower American River to the confluence with the Sacramento River is confined by levees. A River Corridor Management Plan (RCMP) was developed in 2002 to achieve long-term solutions to the many flood-control, environmental protection, and recreation issues in the lower American River. The goal of the RCMP with regard to flood management is to improve the reliability of the existing flood-control system along the lower American River.

Flow in the lower American River varies throughout the year and is primarily controlled by water releases at Folsom Dam to reduce flood risk or to meet downstream water demands. The mean annual flow in the lower American River (1968 to 1998) is 3,300 cubic feet per second (cfs) and the design capacity of the American River channel (for flood flows) is 115,000 cfs (Sacramento County Water Agency [SCWA] et al. 2006:2-4).

The American River Flood Control System includes Folsom Dam, Nimbus Dam, an auxiliary dam at Mormon Island, and eight earth-filled dikes. The facilities were constructed in the 1950s as part of the Central Valley Project. The Central Valley Project, operated by Reclamation, is a multipurpose project that provides flood control, hydroelectricity, drinking water, and water for irrigation. Upgrades consisting of enlarging the eight existing river outlets, constructing two additional river outlets, and modifying the use of surcharge storage at Folsom Dam are currently underway.

Folsom Dam, the largest dam on the American River, provides a maximum storage capacity of 1 million acre-feet (af) of water in Folsom Lake, which is a major source of surface water for the region and protects the region from flooding. The main dam has a structural height of 340 feet and a crest length of 1,400 feet. The spillway of the main dam consists of eight tainter gates (i.e., a type of radial arm floodgate used to control water flow); five of these serve as the main spillway/service gates for the main dam and three are emergency gates. The total release capacity of the eight spillway gates is 567,000 cfs at an elevation of 475.4 feet. Below the five main spillway/service gates are two rows of four river outlets that have a total release capacity of 24,800 cfs at an elevation of 418 feet. Releases at lower levels can also be made through three power plant penstocks (i.e., 15-foot-diameter pipes that convey water through the dam while driving hydroelectric turbines), which have a total release capacity of approximately 8,000 cfs. When the new auxiliary spillway is complete, it will add an additional 312,000 cfs to the existing release capacity for a total of 879,000 cfs.

Releases from the reservoir are restricted by the spillway capacity and by limits set on the rates at which water can be released through the dam structures. Downstream levees are designed to accommodate a sustained flow rate of 115,000 cfs and a maximum capacity of 160,000 cfs for short durations during emergencies; higher releases could result in levee failure and downstream flooding.

Both the Proposed Site and the Alternative 1 Site, along with large portions of the area between Folsom and Sacramento, are located within the Folsom Dam failure flood area (i.e., an area that would be flooded if Folsom Dam were to fail). The area of potential inundation in relation to the project sites is shown in Exhibit 3.8-2.

The Mormon Island Auxiliary Dam and eight other smaller dikes along the circumference of Folsom Lake are located in Blue Ravine. The combined length of the main dam, wing dams, auxiliary dam, and dikes is 26,730 feet, or over 5 miles.

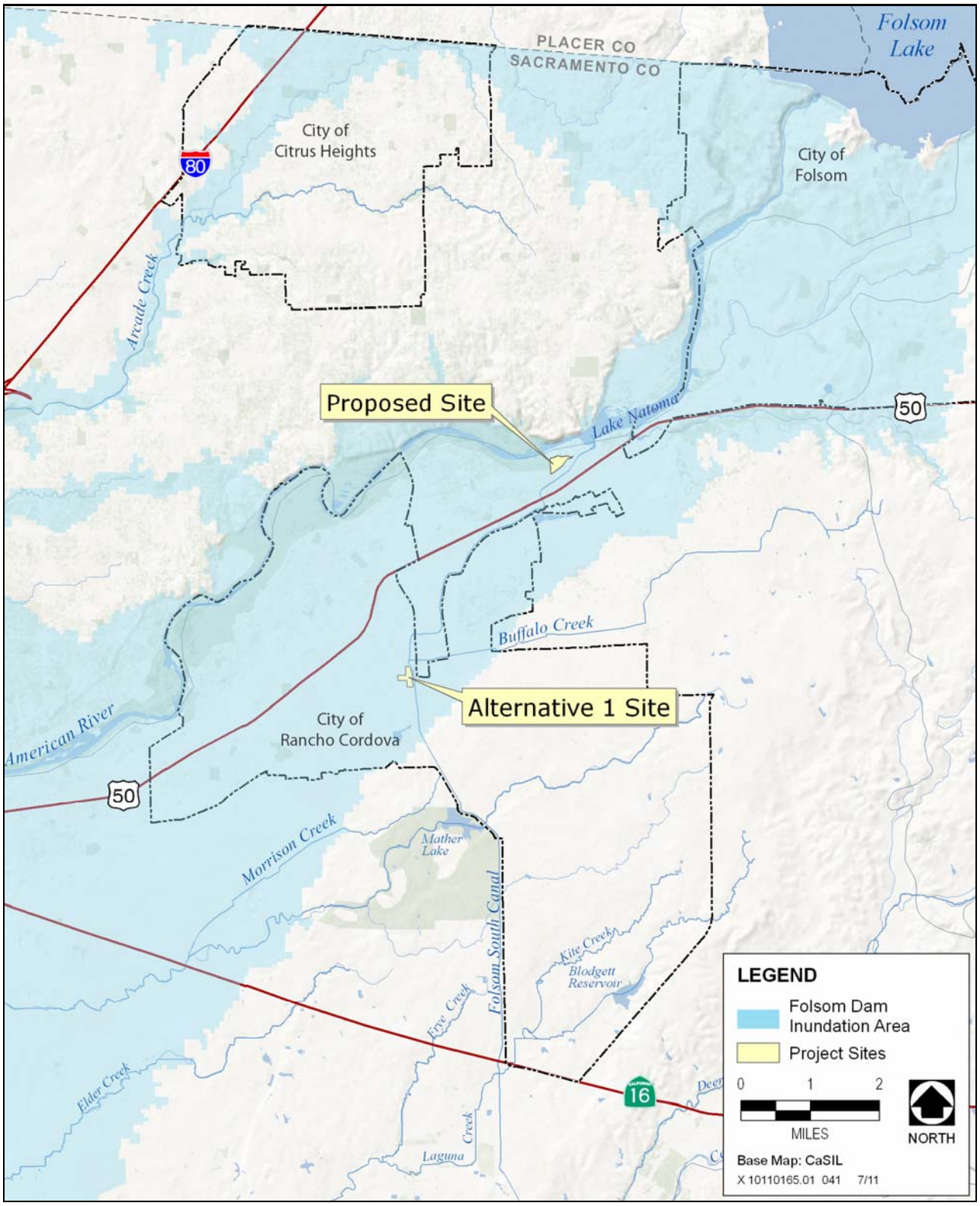
Nimbus Dam is on the American River in Sacramento County, California, 7 miles downstream from Folsom Dam. It reregulates the releases for power made through the Folsom Powerplant. Nimbus Dam is a concrete gravity dam with 18 radial gates used to control the flows. Nimbus Dam forms Lake Natoma, with a capacity of 8,760 af and a surface area of 540 acres.

The levee system within the city of Rancho Cordova consists of the Cordova Meadows Levee, which is approximately 5,000 feet long, and the Sunriver Levee, which is approximately 1,500 feet long along the American River. Both of these levees are located over 2 miles from the Alternative 1 Site and are located downstream of the Proposed Site.

The Folsom South Canal extends along the Alternative 1 Site's eastern boundary. The canal was constructed in the 1970s as a part of the Central Valley Project and is operated by Reclamation. The concrete-lined canal is 26.6 miles long and has a capacity of 3,500 cfs. The bottom of the canal is 34 feet wide and a maximum of 17.8 feet deep.

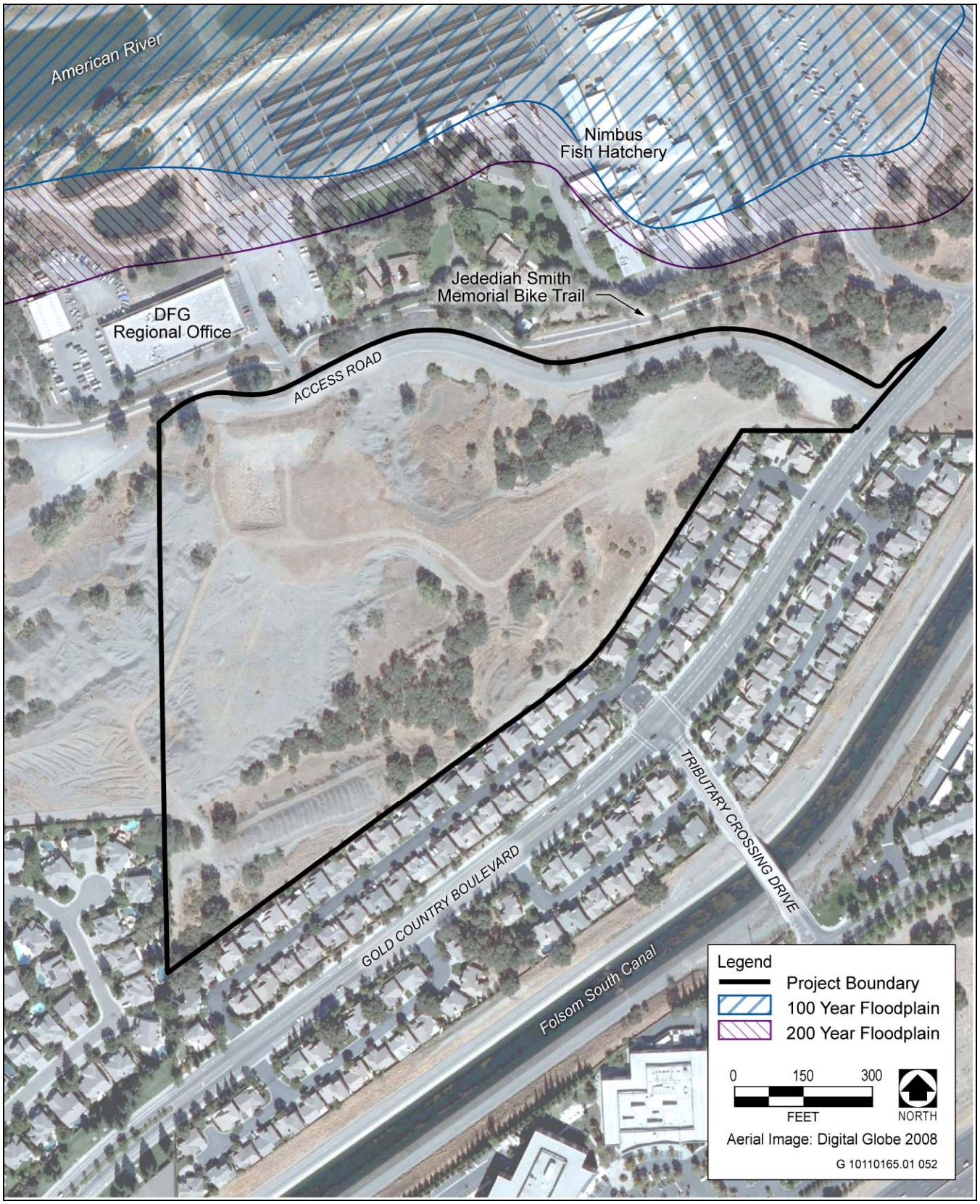
According to the most recent flood rate insurance map prepared by FEMA's National Flood Insurance Program (NFIP), both of the project sites are located outside of the 200-year floodplain (FEMA 2010). The Proposed Site is located approximately 150 feet south of the 200-year floodplain boundary. The Proposed Site in relation to the 100- and 200-year floodplain boundaries is shown in Exhibit 3.8-3. In addition, the DWR Awareness Floodplain Mapping Project identifies the Proposed Site and the Alternative 1 Site as being outside of the DWR Awareness Floodplain (Sacramento County 2007:376). DWR Awareness Floodplain areas are flood-prone areas that are not mapped under the FEMA NFIP.

The city of Rancho Cordova experiences localized flooding issues associated with undersized drainage facilities in existing developed and developing areas. Drainage issues are known to exist along Sunrise Boulevard south of White Rock Road to Grant Line Road, east of the Alternative 1 Site, where surface water flows exceed the capacity of the Folsom South Canal's drainage facilities (siphons and overchutes) and result in localized flooding along Sunrise Boulevard and drainage into the Folsom South Canal (City of Rancho Cordova 2006a:4.9-6). These localized flooding issues, however, are infrequent and are confined to the area east of the Folsom South Canal (Booth, pers. comm., 2011).



Source: DWR 2010, Sacramento County 2008b

Exhibit 3.8-2: Folsom Dam Inundation Area



Source: AECOM 2011

Exhibit 3.8-3: Floodplain Map for the Proposed Site

Groundwater Hydrology The Proposed Site and the Alternative 1 Site are located within the Central Sacramento County Groundwater Basin (Central Basin). The Central Basin is roughly bordered to the north by the American River, to the south by the Cosumnes and Mokelumne Rivers, to the west by Interstate 5 and the Sacramento River, and to the east by the Sierra Nevada foothills. The Central Sacramento County Groundwater Forum (CSCGF) was formed in February 2002 to provide recommendations on a basin governance body. The CSCGF also defined the Central Basin boundary using the Sacramento County groundwater model. The model considered the hydrogeologic boundaries and the political boundaries of organized water purveyors/districts, cities, and Sacramento County (SCWA et al. 2006:ES-4).

The Central Basin boundary essentially overlies the South American Subbasin that DWR uses; however, the boundaries are slightly different because the Central Basin boundary was developed from the Sacramento County groundwater model grid (see Exhibit 3.8-1, "Regional Hydrologic Features"). The South American Subbasin, of which the Central Basin is a portion, is defined as the area bounded on the west by the Sacramento River, on the north by the American River, and on the south by the Cosumnes and Mokelumne Rivers. The Sierra Nevada represents the approximate eastern edge of the alluvial basin, where little groundwater flows into or out of the groundwater basin from the Sierra Nevada foothills. However, the groundwater does interact with adjacent subbasins at greater depths (DWR 2004:1).

Groundwater underlying the Central Basin is contained within a shallow aquifer (Laguna or Modesto Formation) and in a deep aquifer (Mehrten Formation). The Laguna or Modesto Formation consists of older alluvial deposits of loosely to moderately compacted sand, silt, and gravel deposited in alluvial fans. These deposits are moderately permeable and are about 100–650 feet thick (DWR 2004:2). The deeper, Mehrten Formation is a sequence of fragmented volcanic rocks that crop out in a discontinuous band along the eastern margin of the basin. It consists of intervals of black volcanic sands, stream gravels, silt, and clay interbedded with intervals of dense tuff breccia. The sand and gravel intervals are highly permeable and the tuff breccia intervals act as confining layers. The Mehrten Formation is between 200 and 1,200 feet thick. Groundwater is located from 20 to 100 feet below the ground surface (bgs) depending on when and where the water depth is measured. The base of the potable water portion of the deep aquifer averages approximately 1,400 feet bgs.

The city of Rancho Cordova covers a shallow unconfined aquifer system that is part of the Central Basin. The aquifer system is approximately 200 hundred feet bgs and a deeper confined groundwater aquifer system ranges from a few hundred feet to more than 2,000 feet bgs (City of Rancho Cordova 2006a:4.9-11). The deep aquifer is separated from the shallow aquifer by a discontinuous clay layer that serves as a semiconfining layer, but is not completely impermeable.

The Aerojet site, an existing groundwater contamination site that is further described below under "Groundwater Quality," is located beneath both the Proposed Site and the Alternative 1 Site. Based on lithologic, hydrographic, geophysical, and chemical data collected as part of the cleanup and monitoring of the contaminant plume, sediments

beneath the Aerojet site were categorized into separate aquifers: Layers A through F. Layer A is the shallowest and is defined as the first encountered groundwater, although it is not present or unsaturated in many areas of the Aerojet site. Layer B is relatively thin and is also absent or unsaturated in many areas. Layers C through F are in the deeper geologic formations, and Layer F is the deepest zone. Layer A is absent near the American River, and Layer B is unsaturated or absent in most of this area. Where it exists, Layer B ranges from approximately 1 to 20 feet thick, while Layers C and D range from approximately 40 to 90 feet thick. Near the American River, groundwater flows west and northwest, and the hydraulic gradient is relatively flat. Depth to groundwater increases from east to west. Groundwater near the Nimbus Fish Hatchery, just northeast of the Proposed Site, is approximately 50 feet bgs, and groundwater is approximately 100 feet bgs near Sunrise and Gold Country Boulevards, approximately 2 miles west of the Proposed Site and 2.5 miles north of the Alternative 1 Site (Aerojet 2009:21).

Groundwater Levels Intensive use of groundwater during the past 60 years has generally lowered groundwater elevations. Over time, isolated groundwater depressions have grown and coalesced into a single cone of depression that is centered in the southwestern portion of the Central Basin, southwest of the project sites. Groundwater-level trends through much of the Central Basin have generally declined consistently from the 1950s and 1960s to about 1980 by 20–30 feet (SCWA et al. 2006:2-27). From 1980 through 1983, water levels recovered by about 10 feet and remained stable until the beginning of the 1987–1992 drought, when water levels declined by about 15 feet. From 1995 to 2003, most groundwater levels in the Central Basin recovered generally higher than levels before the 1987–1992 drought; however, wells near Rancho Cordova appear to have recovered less than the other wells in the subbasin since 1995 (generally less than 10 feet) (DWR 2004:2). CSCGF estimated the long-term average annual sustainable yield of groundwater from the Central Basin to be 273,000 acre-feet per year (af/year) (SCWA et al 2006:ES-5). Currently, groundwater extractions in the basin are estimated to be 250,000 af/year.

Groundwater Recharge Recharge of the aquifer system occurs along active river and stream channels where extensive sand and gravel deposits exist, particularly along the American, Cosumnes, and Sacramento River channels. Additional recharge occurs along the eastern boundary of Sacramento County at the transition point from the consolidated rocks of the Sierra Nevada to the alluvial-deposited basin sediments (SCWA et al. 2006:2-26). This recharge is classified as subsurface recharge with underground flow into and out of the Central Basin with adjacent groundwater basins. Other sources of recharge include deep percolation from applied surface water and precipitation. Induced recharge can occur from recharge basins and injection of water through wells. Recharge capabilities on the project sites are generally characterized as low (Sacramento County 2009:18, Figure 4; City of Rancho Cordova 2006a:4.9-12).

Surface Water Quality The American River system supports a number of beneficial uses along its three main forks and many tributaries and is generally considered an excellent source of high-quality water. Waters from the upper watershed above Folsom Dam generally have excellent quality regarding mineral and nutrient content and low concentrations of total dissolved solids (TDS). Water from the American River watershed

between Folsom Dam and the Sacramento River is suitable for beneficial uses such as municipal and domestic supply, agricultural (irrigation) and industrial supply, hydropower generation, contact and noncontact recreation, warm-water and cold-water fish habitat (including fish migration and spawning habitat), and wildlife habitat (Central Valley Regional Water Quality Control Board [Central Valley RWQCB] 2009:II-6.00).

Several fish populations depend on the typical high water quality of the lower American River for spawning, rearing, and feeding. The clean water of the American River also provides recreation opportunities such as boating, swimming, rafting, and fishing. The lower American River was designated as a component of the National Wild and Scenic Rivers System by the National Parks Service in 1981. The Secretary of the Interior further designated this section of the American River as a Recreational River, under the National Wild and Scenic Rivers Act, and the river is given the same designation by the State of California under the State Wild and Scenic Rivers system.

The Section 303(d) impaired waters list for California, issued by the Central Valley RWQCB (discussed below in the "Regulatory Setting" under "Federal"), identifies the lower American River as being impaired by mercury from resource extraction/abandoned mine sources, unknown toxicity from an unknown source, and polychlorinated biphenyls (PCBs) with an unknown source (Central Valley RWQCB 2009:1). The total maximum daily limit (TMDL) for PCBs and unknown toxicity is expected to be completed by the Central Valley RWQCB and approved by EPA by 2021. The TMDL for mercury was expected to be finished by 2010; however, it has not yet been completed.

The Sacramento Coordinated Monitoring Program (CMP), a joint effort of the Sacramento Regional County Sanitation District and the Sacramento Stormwater Management Program, was created in 1991 to collect river water samples and tests for a variety of water quality constituents and contaminants. A monitoring location on the lower American River, just south of Nimbus Dam and just northeast of the Proposed Site, is part of the CMP. Over 20 constituents were monitored at this site during the 2009–2010 monitoring effort and the levels of the conventional parameters (pH, temperature, dissolved oxygen, conductivity, chloride, turbidity and TDS) met the water quality objectives that apply to each Water Quality Control Plan (basin plan); however, *Escherichia coli* (*E. coli*) exceeded its lowest applicable water quality objective on one occasion (Larry Walker Associates 2010:3-17, 3-22). The 2009–2010 annual report of monitoring data includes summary statistics for the entire period of record from 1992 to 2010 (Larry Walker Associates 2010:B-8 to B-9, Table B-4).

The Sacramento Area Sewer District (SASD) is a sewer utility that serves the Sacramento region, including the unincorporated areas of Sacramento County and the city of Rancho Cordova. Once collected, sewage flows into the Sacramento Regional County Sanitation District (SRCSD) interceptor system and is conveyed to the Sacramento Regional Wastewater Treatment Plant near Elk Grove. SRCSD owns and is responsible for the operation of the Sacramento Regional Wastewater Treatment Plant, which provides secondary level wastewater treatment before discharging wastewater to the Sacramento River (SCWA 2005:4-3 through 4-4).

The storm drain system within the area includes a constructed system of storm drain inlets, pipelines, open channels, roadside ditches, detention basins, and roadside ditches that discharge, for the most part, into various local creeks and into the American and Sacramento Rivers, which eventually flow into the Sacramento–San Joaquin Delta and from there to the San Francisco Bay and the Pacific Ocean (SSQP 2009:1-5).

Groundwater Quality Groundwater in the South American Subbasin is typically a calcium magnesium bicarbonate or magnesium calcium bicarbonate. TDS in the South American Subbasin range from 24 to 581 milligrams per liter (mg/l) and average 221 mg/l based on 462 records (DWR 2004:3).

Water quality in the shallow aquifer zone of the larger Central Basin, which extends 200–300 feet bgs, is good with the exception of arsenic detections in a few locations. The shallow aquifer is typically used for private domestic wells and requires no treatment unless high arsenic values are encountered, in which case other water-bearing units are utilized. The deep aquifer is separated from the shallow aquifer by a discontinuous clay layer that serves as a semiconfining layer for the deep aquifer. Water in the deep aquifer typically has higher concentrations of TDS, iron, and manganese and typically requires treatment (SCWA et al. 2006:2-24). Iron and manganese are known to cause mineral deposits and affect the taste of water. At depths of approximately 1,400 feet or greater, TDS concentrations exceed 2,000 mg/l and groundwater is considered nonpotable unless treated by reverse osmosis (SCWA et al 2006:2-30).

Several sources of groundwater contamination are located within the Central Basin, such as Mather Field, Aerojet, Boeing, the former Sacramento Army Depot, the Union Pacific railyards, and present and former landfills (SCWA et al. 2006:ES-4). Contaminants, including trichloroetheylene (TCE), perchlorate, and n-nitrosodimethylamine, have been detected in groundwater near the Aerojet site, which includes both the Proposed Site and the Alternative 1 Site.

Regulatory Setting

Federal Plans, Policies, Regulations, and Laws The following Federal laws related to hydrology and water quality are relevant to the JOC Relocation Project and are described in detail in Section 5.6, “Compliance with Related Laws, Rules, Regulations, and Executive Orders”:

- Federal Clean Water Act
  - Water Quality Criteria and Standards
  - National Pollutant Discharge Elimination System Permit Program
  - Section 401 Water Quality Certification or Waiver
  - Antidegradation Policy
  - Section 303(d) Impaired Waters List
- Federal Emergency Management Agency
- Bureau of Reclamation Sustainable Buildings Implementation Plan Requirements

State Plans, Policies, Regulations, and Laws In California, SWRCB has broad authority over water-quality control issues for the State. SWRCB is responsible for developing statewide policy for water quality and exercises the powers delegated to the State by the Federal government under the CWA. Other State agencies with jurisdiction over water quality regulation in California include the California Department of Public Health (DPH) (for drinking-water regulations), the California Department of Pesticide Regulation, DFG, and the Office of Environmental Health Hazard Assessment (OEHHA).

Regional authority for planning, permitting, and enforcement is delegated to the nine RWQCBs. The regional boards must formulate and adopt basin plans for all areas in the region and establish water quality objectives in the plans. California water quality objectives (or "criteria" under the Clean Water Act) are found in the basin plans adopted by SWRCB and each of the nine RWQCBs. The Central Valley RWQCB is responsible for the regional area in which the project sites are located.

Title 22 Standards Water quality standards are enforceable limits composed of two parts: the designated beneficial uses of water and criteria (i.e. numeric or narrative limits) to protect those beneficial uses. Municipal and domestic supply (MUN) is among the "beneficial uses" as defined in Section 13050(f) of the Porter-Cologne Act, which defines them as uses of surface water and groundwater that must be protected against water quality degradation. Maximum contaminant levels (MCLs) are components of the drinking water standards adopted by the DPH pursuant to the California Safe Drinking Water Act. California MCLs may be found in Title 22 of the California Code of Regulations (CCR), Division 4, Chapter 15, Domestic Water Quality and Monitoring. The DPH is responsible for Title 22 of the CCR (Article 16, Section 64449) as well, which also defines secondary drinking water standards, established primarily for reasons of consumer acceptance (i.e., taste) rather than because of health issues.

Porter-Cologne Water Quality Control Act The Porter-Cologne Act is California's statutory authority for the protection of water quality. Under the act, the State must adopt water quality policies, plans, and objectives that protect the State's waters for the use and enjoyment of the people. The act sets forth the obligations of the SWRCB and RWQCBs to adopt and periodically update basin plans. Basin plans are the regional water quality control plans required by both the CWA and Porter-Cologne Act in which beneficial uses, water quality objectives, and implementation programs are established for each of the nine regions in California. The act also requires waste dischargers to notify the RWQCBs of their activities through the filing of reports of waste discharge (RWDs) and authorizes SWRCB and RWQCBs to issue and enforce waste discharge requirements (WDRs), NPDES permits, Section 401 water quality certifications, or other approvals. The RWQCBs also have authority to issue waivers to RWDs and/or WDRs for broad categories of "low threat" discharge activities that have minimal potential for adverse water quality effects when implemented according to prescribed terms and conditions.

California State Nondegradation Policy In 1968, as required under the Federal antidegradation policy described above, SWRCB adopted a nondegradation policy aimed at maintaining high quality for waters in California. The nondegradation policy states that

the disposal of wastes into State waters shall be regulated to achieve the highest water quality consistent with maximum benefit to the people of the State and to promote the peace, health, safety, and welfare of the people of the State. The policy provides as follows:

- Where the existing quality of water is better than required under existing water quality control plans, such quality would be maintained until it has been demonstrated that any change would be consistent with maximum benefit to the people of the State and would not unreasonably affect present and anticipated beneficial uses of such water.
- Any activity that produces waste or increases the volume or concentration of waste and that discharges to existing high-quality waters would be required to meet waste discharge requirements that would ensure (1) pollution or nuisance would not occur and (2) the highest water quality consistent with the maximum benefit to the people of the State would be maintained.

California Toxics Rule and State Implementation Plan In May 2000, SWRCB adopted and EPA approved the California Toxics Rule (CTR), which establishes numeric water quality criteria for approximately 130 priority pollutant trace metals and organic compounds. The CTR includes criteria for the protection of aquatic life and human health. SWRCB subsequently adopted its State Implementation Policy (SIP) of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries in 2000. It establishes provisions for translating CTR criteria, National Toxics Rule criteria, and basin plan water quality objectives for toxic pollutants into effluent limits under the NPDES permit; determining effluent compliance; monitoring for 2,3,7,8-TCDD (dioxin) and its toxic equivalents, providing for chronic (long-term) toxicity control; initiating site-specific water quality objective development; and granting exceptions for effluent compliance. The goal of the SIP is to establish a standardized approach for the permitting of discharges of toxic effluents to inland surface waters, enclosed bays, and estuaries in a consistent fashion throughout the state.

NPDES Permit System and Waste Discharge Requirements for Construction SWRCB and Central Valley RWQCB have adopted specific NPDES permits for a variety of activities that have potential to discharge wastes to waters of the State. On September 2, 2009, the SWRCB approved a new construction general permit (Order 2009-0009-DWQ), which went into effect and replaced Order 99-08-DWQ on July 1, 2010. The construction general permit applies to all land-disturbing construction activities that would disturb 1 acre or more. All of the NPDES permits involve similar processes, including submitting the Central Valley RWQCB of notices of intent (NOI) to discharge, and implementing storm water pollution prevention plans (SWPPPs) that include best management practices (BMPs) to minimize those discharges. As mentioned above, the Central Valley RWQCB may also issue site-specific WDRs, or waivers to WDRs, for certain waste discharges to land or waters of the State. In particular, Central Valley RWQCB Resolution R5-2003-0008 identifies activities subject to waivers of RWDs and/or WDRs, including minor dredging activities and construction dewatering activities that discharge to land.

Construction activities subject to the general construction activity permit include clearing, grading, stockpiling, and excavating. Dischargers must eliminate or reduce nonstormwater discharges to storm sewer systems and other waters. The permit also requires dischargers to consider the use of permanent postconstruction BMPs that would remain in service to protect water quality throughout the life of the project. All NPDES permits also have inspection, monitoring, and reporting requirements. In response to a court decision, the Central Valley RWQCB also implemented mandatory water quality sampling requirements in Resolution 2001-046 for visible and nonvisible contaminants in discharges from construction activities. Water quality sampling is now required if the discharge could result in turbidity or sediment in a water body that is listed as impaired under Section 303(d) because of sediment or siltation or if a release of a nonvisible contaminant occurs. Where such pollutants are known or should be known to be present and have the potential to contact runoff, sampling and analysis is required. NPDES permits require design and operational BMPs to be implemented to reduce the level of contaminant runoff. Types of BMPs include source controls, treatment controls, and site planning measures.

Discharges subject to the SWRCB NPDES general permit for construction activity are subject to a SWPPP, which must be developed and implemented for the discharge. The SWPPP must include a site map and description of construction activities and identify the BMPs that would be employed to prevent soil erosion and discharge of other construction-related pollutants (e.g., petroleum products, solvents, paints, and cement) that could contaminate nearby water resources.

NPDES Municipal Stormwater Permit Program The SWRCB Municipal Storm Water Permitting Program regulates stormwater discharges from MS4s. MS4 permits are issued in two phases. Under Phase I, which started in 1990, the RWQCBs have adopted NPDES stormwater permits for medium (serving between 100,000 and 250,000 people) and large (serving 250,000 people) municipalities. Most of these permits are issued to a group of co-permittees encompassing an entire metropolitan area. As part of Phase II, the SWRCB adopted a General Permit for the Discharge of Storm Water from Small MS4s (WQ Order No. 2003-0005-DWQ) to provide permit coverage for smaller municipalities. The MS4 permits require the discharger to develop and implement a stormwater management plan/program with the goal of reducing the discharge of pollutants to the maximum extent practicable (MEP). MEP is the performance standard specified in Section 402(p) of the CWA. The management programs specify what BMPs will be used to address certain program areas. The program areas include public education and outreach; detection and elimination of illicit discharge; construction and postconstruction; and municipal operations. In general, medium and large municipalities are required to conduct water quality monitoring, though small municipalities are not.

Sacramento County and City of Rancho Cordova Phase I NPDES MS4 Permit
Sacramento County and the cities of Rancho Cordova, Folsom, Elk Grove, Citrus Heights, Galt, and Sacramento are co-permittees to the Sacramento Areawide NPDES MS4 permit (Sacramento MS4 permit), which the Central Valley RWQCB issues and enforces. First issued in 1990, the latest permit was adopted on September 11, 2008 (NPDES Permit No. CAS082597, WDR Order No. R5-2008-0142). The permittees

formed the Sacramento Stormwater Quality Partnership (SSQP) (described in more detail in the next section below) to coordinate and implement permit compliance activities. A stormwater quality improvement plan (SQIP) developed for compliance with the NPDES permit is the guiding document for the permittees (SSQP 2009) and describes the activities that will be implemented to reduce pollutant discharges in urban runoff to the MEP. The SSQP, in association with the city of Roseville, published the *Stormwater Quality Design Manual for the Sacramento and South Placer Regions* (*Stormwater Quality Design Manual*) in May 2007, which is currently the guiding technical design document for development and major redevelopment in Sacramento County and the city of Rancho Cordova (SSQP 2007).

As part of the SQIP, several regulations/procedures are in place that implement the SQIP, including the Grading and Erosion Control Ordinance (Chapter 16.44 of the existing Sacramento County Code) and construction standards. The Grading and Erosion Control Ordinance establishes administrative procedures, a minimum standard of review, and implementation and enforcement procedures for controlling erosion, sedimentation, and other pollutant runoff from new development projects. The ordinance also addresses grading, filling, land excavation, construction activities, and drainage as they relate to a particular project.

A key component of complying with the NPDES permit is implementing the new development element of the SQIP. This element requires stormwater quality treatment and/or BMPs in project design for both construction and operation. Postconstruction stormwater quality controls for new development require using the control measures set forth in the *Stormwater Quality Design Manual*. The control measures include the sizing and design criteria for regional detention basins and the design and maintenance criteria for maintaining the quality of on-site stormwater, treating stormwater, and reducing stormwater runoff.

An important component of the Sacramento MS4 permit requires each permittee to update and continue to implement the planning and new development element of its SQIP. The purpose of this step is to minimize the short- and long-term impacts on receiving water quality from new development and redevelopment. The permit requires the continued implementation of the permittees' development standards during the entitlement and CEQA process and the development plan review process. Specifically, the Sacramento MS4 permit identifies the need to address changes in the hydrologic and geomorphic processes in a watershed as a result of impervious surfaces and drainage infrastructure from urbanization are referred to as "hydromodification." The Sacramento MS4 permit also identifies the need for low impact development (LID) controls to more closely mimic the predeveloped hydrologic condition. To address hydromodification, the permit requires the permittees to prepare and implement a hydromodification management plan, which entails revising development standards and associated technical guidance (such as from the *Stormwater Quality Design Manual*). Technical guidance must also be updated to incorporate new LID requirements.

Dam Failure Inundation Mapping and Emergency Procedures Program Dam inundation mapping procedures (Title 19, Section 2575, of the California Code of

Regulations [19 CCR Section 2575]) are required by the Governor's Office of Emergency Services (OES) for all dams where human life is potentially endangered by dam flooding inundation. Dam owners are responsible for obtaining recent hydrologic, meteorological, and topological data, as well as land surveys denoting the floodplain, to be used for the preparation of a dam inundation map. This information is to be submitted to OES 60 days before the filling of any dam. Canal and levee inundation mapping procedures (19 CCR Section 2585) are similar to dam inundation mapping procedures and are required by OES for all canals and levees where human life is potentially endangered by canal or levee flooding inundation. Canal and levee owners are responsible for obtaining recent hydrologic, meteorological, and topological data, as well as land surveys denoting the floodplain, to be used for the preparation of a canal or levee inundation map.

Because both the Proposed and Alternative 1 Sites are immediately downstream of Nimbus Dam and Folsom Dam, information on dam inundation is relevant to the project.

Sacramento County Emergency Operations Plan The Sacramento County Emergency Operations Plan establishes an Emergency Management Organization and provides direction on how to respond to an emergency from the onset, through an extended response, and into the recovery process. It provides for the integration and coordination of planning efforts of multiple jurisdictions within Sacramento County. The content of the Plan is based on guidance approved and provided by OES and FEMA.

Public alert and warning is necessary to increase public awareness of an impending threat, and to provide clear instructions should an emergency situation require the need for evacuation. The Automated Local Evaluation in Real Time (ALERT) system utilizes stream and rain gauges to predict downstream flood levels and warn about possible flash flooding. The rapid identification and analysis of sudden changes in stream flow is used to allow timely public warning of this hazard.

Central Valley Flood Protection Plan The Central Valley Flood Protection Plan (as set forth in California Water Code, Section 9614) is a descriptive document that:

- describes the Flood Management System, its performance, and the challenges to modifying it;
- describes the facilities included in the State Plan of Flood Control;
- describes probable impacts of projected climate change, land-use patterns, and other potential challenges;
- evaluates needed structural improvements and a list of facilities recommended for removal; and
- describes both structural and nonstructural methods for providing an urban level of flood protection to currently urbanized areas in the Central Valley.

Regional and Local Plans, Policies, Regulations, and Ordinances The JOC Relocation Project is jointly proposed by Reclamation, a Federal agency, and DWR, a State agency. The Proposed Site is Federal property owned by Reclamation. A Federal agency operating on Federal land is not required to comply with regional or local plans, policies, regulations, or ordinances. However, a Federal agency normally will conform with local regulations and state laws that do not interfere with the agency's ability to "carry out the purposes of the government," such as building, health, and safety codes (*Fort Leavenworth R.R. v. Lowe*, 114 U.S. 525 [1885]).

Activities at the Proposed Site would not be required to comply with regional or local regulations, but Reclamation has committed to a "good neighbor" policy and would conform with those regulations to the extent that such compliance would not conflict with or hinder the mission and purposes of the agency or the departments located at the site. Activities at the Alternative 1 Site would take place on private property and would require full compliance with all regional and local regulations.

Sacramento County General Plan The goals, objectives, and policies from the *1993 County of Sacramento General Plan* (Sacramento County 1993) related to hydrology and water quality that may be used as guidance for the Proposed Action and alternatives under consideration are listed below:

Conservation Element

Groundwater Recharge Objective: Understanding of the nature and extent of ground water recharge and protect key aquifer recharge areas.

- **Policy CO-20:** Maintain agricultural zoning, and existing agricultural or other open space uses, in primary aquifer recharge areas identified as having a moderate to very high recharge capability. Rezone applications for categories other than agricultural or open space within one quarter mile of ground water recharge capability boundaries shall supply hydrologic data that demonstrates no negative impact to recharge capability before the rezone application shall be considered complete.
- **Policy CO-21:** Prohibit urban land uses and impervious surfaces or nonagricultural land uses which could allow the percolation of pollutants into the groundwater table in areas with moderate to very high ground water recharge capability.

Surface Water Quality Objective: A cost effective program using best management practices to reduce pollutants in urban runoff discharged to Waters of the State to the maximum extent practicable, and comprehensive monitoring and reporting to evaluate program effectiveness and satisfy regulations.

- **Policy CO-32:** Development shall not occur in areas that are particularly susceptible to erosion.
- **Policy CO-33:** Promote on-site infiltration as a development design strategy based on soil and other site conditions, and where groundwater quality will not be adversely affected.

- **Policy CO-34:** For new development and significant redevelopment projects:
  - Encourage designs which minimize impervious and directly-connected impervious surfaces, which are known to contribute to water quality degradation in downstream receiving waters.
  - Require pollutant source controls in all cases and treatment controls where applicable, to reduce pollutants in runoff to the maximum extent practicable.
  - Require control of the post-development peak stormwater runoff discharge rates and velocities to prevent or reduce downstream erosion, and to protect stream habitat.
- **Policy CO-35:** Implement a program to ensure that stormwater quality treatment facilities installed during development are maintained to ensure optimum pollutant removal performance for the life of the project.
- **Policy CO-38:** Development, including infrastructure shall be designed, built and landscaped:
  - To minimize erosion during and after construction.
  - To minimize grading on slopes above 20%.

Groundwater Quality Objective: Ensure the protection of the existing and future quality of groundwater through education, monitoring, and regulation of known contaminants.

- **Policy CO-46:** Where groundwater contamination has occurred, new wells shall not be created nor existing wells be deepened unless an appropriate filtration system is installed that will remove all toxic and harmful pollutants.

Hazardous Materials Element

Public Health and Safety Objective: Protect the residents of Sacramento County from the effects of a hazardous material incident via the implementation of various public health and safety programs.

- **Policy HM-4:** The handling, storage, and transport of hazardous materials shall be conducted in a manner so as not to compromise public health and safety standards.
- **Policy HM-8:** Continue the effort to prevent ground water and soil contamination.

Safety Element

Flooding GOAL: Minimize the loss of life, injury, and property damage due to flood hazards.

- **Policy SA-11:** Where new upstream development in Sacramento County will increase or potentially impact runoff onto parcels downstream in a neighboring jurisdiction,

such as the city of Sacramento, Sacramento County will coordinate with the appropriate neighboring jurisdiction to mitigate such impacts.

- **Policy SA-12:** The County shall require all new urban development projects to incorporate runoff control measures to minimize peak flows of runoff and/or assist in financing or otherwise implementing Comprehensive Drainage Plans.

Sacramento County General Plan Update Sacramento County is in the process of preparing a draft *Sacramento County General Plan Update* (Sacramento County 2010) and EIR to plan for growth in the period 2010–2030. Until that EIR has been certified and the update has been adopted by the Sacramento County Board of Supervisors, the 1993 general plan remains in effect. Following receipt of a third-party review in December 2010, hearings on the general plan began in spring 2011 and are ongoing.

City of Rancho Cordova General Plan Goals and policies of the *Rancho Cordova General Plan* (City of Rancho Cordova 2006b) related to hydrology and water quality that apply to the Alternative 1 Site are listed below:

Natural Resources Element

GOAL NR.5: Protect the quantity and quality of the City's water resources.

- **Policy NR.5.1:** Promote water conservation within existing and future urban uses.
- **Policy NR.5.2:** Encourage the use of treated wastewater to irrigate parks, golf courses, and landscaping.
- **Policy NR.5.3:** Protect surface and ground water from major sources of pollution, including hazardous materials contamination and urban runoff.
- **Policy NR.5.5:** Minimize erosion to stream channels resulting from new development in urban areas consistent with State law.
- **Policy NR.5.6:** Incorporate Storm Water, Urban Runoff, and Wetland Mosquito Management Guidelines and Best Management Practices into the design of water retention structures, drainage ditches, swales, and the construction of mitigated wetlands in order to reduce the potential for mosquito-borne disease transmission.
- **Policy NR.5.7:** Continue to cooperate and participate with the County, other cities, and the RWQCB regarding compliance with the joint NPDES Permit (NPDES No. CAS082597) or any subsequent permit and support water quality improvement projects in order to maintain compliance with regional, state and federal water quality requirements.

Safety Element

GOAL S.2: Reduce the possibility of a flooding or drainage issue causing damage to urban land uses within the City.

- **Policy S.2.1:** Support and encourage efforts to limit and reduce the potential for community flooding from the Cosumnes or American Rivers.

- **Policy S.2.2:** Manage the risk of flooding by discouraging new development located in an area that is likely to flood.
- **Policy S.2.4:** Ensure that adequate drainage exists for both existing and new development.

GOAL S.5: Reduce the possibility of serious harm to residents, employees, or the environment as the result of an accidental release of toxic or hazardous substances.

- **Policy S.5.3:** Regulate the storage of hazardous materials and waste consistent with Federal and State law.

Sacramento County Floodplain Management Plan Sacramento County updated its floodplain management plan in 2001 (Sacramento County 2001), which is a requirement of the NFIP Community Rating System. The plan identifies the major watersheds and watercourses within Sacramento County, the flooding problems associated with these watercourses, and the measures being taken to minimize the flood risk for each watercourse. The Proposed Site and the Alternative 1 Site would be located in the Natural Streams Watershed, as defined in the floodplain management plan. The Alternative 1 Site is additionally located on the northern border of the Morrison Creek Watershed, as defined in the floodplain management plan. The County's Grading and Erosion Control Ordinance and Stormwater Ordinance and the following policies regarding flooding in currently undeveloped areas apply to the Proposed Action and the other alternatives under consideration (Sacramento County 2001:19):

- Provisions of the Natural Streams Plan will be followed.
- Adequate topography with1-foot contours will be required for all areas where the land is less than 2 feet above the 100-year water surface elevation. The topography must be based upon an onsite survey and stamped and signed by a licensed land surveyor or registered civil engineer.
- A certified grading plan will be required once grading is complete.

Sacramento Stormwater Quality Partnership The permittees of the Sacramento MS4 Permit described above (i.e., Sacramento County and the cities of Rancho Cordova, Sacramento, Citrus Heights, Elk Grove, Galt, and Folsom) have joined together to form the SSQP. The SSQP is a collaborative partnership that protects and improves water quality in local waterways for the benefit of the community and the environment. The goals of the SSQP are to:

- improve the quality of urban runoff,
- increase public awareness about water quality and encourage pollution prevention behavior,
- strive for countywide consistency between permittee agency programs,

- improve internal communication and coordination to facilitate agency wide compliance,
- use public funds efficiently and effectively, and
- keep apprised of new and evolving regulations that may affect the Program in the future.

The permittees cooperatively participate in decision making and goal setting for the monitoring program, are involved in consultant selection and review, and comment on compliance reports and other work products. Annual reports are produced that describe the activities conducted to comply with the NPDES permit.

The efforts to prevent stormwater pollution that are needed to satisfy the NPDES permit requirements are implemented by the SSQP through its SQIP, either jointly or by the individual permittees. The major categories of SQIP activities, conducted jointly by the SSQP, are:

- program management – including legal authority and funding, inter- and intra-agency coordination, effectiveness assessment;
- target pollutant program (including implementation of plans to target mercury and pesticides);
- monitoring program to satisfy monitoring requirements specified in the monitoring and reporting program (MRP) portion of the NPDES permit;
- special studies; and
- regional public outreach.

Central Sacramento County Groundwater Management Plan The Central Sacramento County Groundwater Management Plan (CSCGMP) was completed in 2006 by Central Sacramento County Groundwater Basin stakeholders, in coordination with the Sacramento County Water Agency. The purpose of the CSCGMP is to establish a framework for maintaining a sustainable groundwater resource for the various users of the Sacramento County Groundwater Basin between the American and Cosumnes Rivers (SCWA et al. 2006:ES-1). The CSCGMP helps overlying water users to maintain a safe, sustainable, and high-quality groundwater resource within a given groundwater basin. The five basin management objectives that have been proposed for the Central Basin are listed below. Each objective focuses on managing and monitoring the basin to benefit all groundwater users in the basin. Each objective is intended to be specific enough to result in numerical criteria for the basin, but also can be modified or adapted to new information on groundwater basin behavior over time.

- Maintain the long-term average groundwater extraction rate at or below 273,000 af/year.

- Maintain specific groundwater elevations within all areas of the basin consistent with the Water Forum.
- Protect against any potential inelastic land surface subsidence by limiting subsidence to no more than 0.007 feet per 1 foot of drawdown in the groundwater basin.
- Protect against any adverse impacts to surface water flows in the American, Cosumnes, and Sacramento Rivers.
- Water quality objectives for several constituents of concern:
  - Maintain TDS concentration of less than 1,000 mg/l,
  - Maintain nitrate concentration of less than 45 mg/l, and
  - Monitor volatile organic compounds (VOC) migration and consider any measurable trace of VOC in private or public wells as significant.

3.8.2 Environmental Consequences and Mitigation Measures

Methods

Hydrologic and water quality primary data collection were not conducted for the Proposed Action or Alternative 1 because sufficient information is available from existing sources. Information for the affected environment and environmental consequences were compiled based on published reports and documents, including:

- DWR Bulletin 118;
- Sacramento County General Plan;
- City of Rancho Cordova General Plan;
- Rancho Cordova General Plan Draft Environmental Impact Report;
- Central Sacramento County Groundwater Management Plan;
- Sacramento County Water Agency 2005 Zone 41 Urban Water Management Plan;
- Water Quality Control Plan (basin plan) for the Central Valley RWQCB, Fourth Edition, the Sacramento River Basin and the San Joaquin River Basin;
- Stormwater Quality Improvement Plan (SQIP) for Sacramento County;
- Stormwater Quality Design Manual for the Sacramento and South Placer Regions (Stormwater Quality Design Manual); and
- Sacramento City/County Drainage Manual Volume 2: Hydrology Standards.

This analysis of the hydrologic and water quality impacts of the project focuses on the effects of both the construction of building facilities and long-term facility operations. To

evaluate potential impacts associated with the project, the proposed hardscape (including all impervious areas such as rooftops and parking areas) was compared with existing conditions at the Proposed Site and the Alternative 1 Site. Impervious surface is used as an indicator for stormwater runoff potential. Thus, the analysis assessed the potential for runoff to increase and for new land uses to be introduced and result in adverse impacts on water quality during both construction and long-term operation of the project.

Assumptions

Hydrology and water quality would be affected by changes in land use, changes in the amount of impervious surfaces, and introduction of new pollutants with project development. Project construction could result in introducing various pollutants into stormwater runoff, in that it would require excavating and transporting material that could enter the stormwater system through wind erosion, water erosion, mechanical abrasion of earthen materials in exposed work areas, and spillage from mechanical equipment and haul trucks. Long-term degradation of the quality of water runoff could be caused by changes in intensity of land use.

As described in Section 2.3, “Project Purpose and Need and Project Objectives,” one of the objectives of the project is to develop a sustainable and energy-efficient building complex that is respectful of the local and global environment and that achieves a minimum of the Leadership in Energy and Environmental Design (LEED®) Silver rating. A required element of LEED certification is Sustainable Sites (SS) Prerequisite 1: Construction Activity Pollution Prevention. This prerequisite would require an erosion and sedimentation control plan to be developed and implemented to reduce pollution from construction activities. This credit requires the erosion and sediment control plan to conform to the requirements of the EPA Construction General Permit or local erosion and sedimentation control standards and codes, whichever is more stringent. It is therefore assumed in this analysis that achievement of this mandatory LEED prerequisite would require compliance with the Sacramento County Land Grading and Erosion Control Ordinance (Chapter 16.44 of County and City of Rancho Cordova Municipal Codes), as discussed above under “Regulatory Setting,” under the “Sacramento County and City of Rancho Cordova Phase I NPDES MS4 Permit” subsection.

Criteria for Determining Significance of Effects

Determinations of significance in this EIS/EIR are based on the environmental checklist in Appendix G of the State CEQA Guidelines, as amended. These determinations are provided pursuant to CEQA. The Proposed Action and alternatives under consideration would be considered to have a significant impact related to hydrology and water quality if they would:

- violate any water quality standards or waste discharge requirements, including NPDES waste discharge or stormwater runoff requirements, State or Federal antidegradation policies, enforceable water quality standards contained in the Central Valley RWQCB basin plan or statewide water quality control plans, or Federal rulemakings to establish water quality standards in California;

- substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a substantial lowering of the level of the local groundwater table;
- substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on-site or off-site;
- create or contribute runoff water that would exceed the capacity (peak flow) of existing or planned stormwater drainage systems;
- require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- substantially degrade water quality;
- place within a 100-year (0.01 Annual Exceedance Probability [AEP]) flood hazard area structures that would impede or redirect flood flows; or
- 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.

Issues Not Addressed Further in This EIS/EIR

Alter a Stream or River Course—No streams or river courses are currently located at either project site; therefore, implementing the project would not alter a stream or river course. These issues are not discussed further in this EIS/EIR.

Impact Analysis

See Table 3.0-2 for a summary of impacts and mitigation measures for Alternative 2 (incorporated by reference from the Mather Field Specific Plan FEIR).

Impact 3.8-1: Potential Temporary, Short-Term Drainage and Water Quality Effects Related to Construction

No-Action

Under the No-Action Alternative, no construction activities would occur; therefore, the project would not expose people or structures to significant new risk as a result of drainage or water quality effects related to construction. N**o direct or indirect impact** would occur.

Proposed Action

Construction activities would involve grading and movement of earth, which would alter on-site drainage patterns and could generate sediment, erosion, and other nonpoint source pollutants in on-site stormwater that could drain to off-site areas or into the stormwater system and degrade local water quality. Project construction is estimated to take 2 years and would be completed in two phases. The Proposed Site would create impervious surfaces over approximately 9.02

acres for the campus-style layout and approximately 9.09 acres for the three-story layout, including areas for the proposed buildings and parking areas. Construction staging would be located on-site; however, if a construction contractor(s) selects additional staging areas, DWR would require that these be on existing disturbed or paved locations near the project site. No drainages on-site lead to the American River; however, a drainage culvert exists that passes under Nimbus Road from the roadside ditch.

Phase 1 construction would require using loaders, excavators, backhoes, trenchers, and trucks to prepare the site and connect to utility infrastructure. Phase 2 would involve constructing the buildings, which would require excavation for foundations and final landscaping. Typical equipment required for Phase 2 would include pier drillers, potentially pile drivers, concrete pumpers, concrete bath trucks, generators, welders, pneumatic impact wrenches, and delivery trucks.

Vegetation removal, excavation, grading, trenching, and staging at the Proposed Site would temporarily disturb surface soils, which would expose soil to the erosive forces of wind and water and might transport sediment into local drainages, increasing turbidity, degrading water quality, and resulting in silt in local waterways. Soil stockpiles and excavated portions of the Proposed Site could be exposed to runoff if not managed properly, and the runoff could cause increased erosion and sedimentation to be carried into the stormwater drainage system or local waterways. Further, heavy equipment would compact soils and may further reduce the infiltration capacity of soils and increase the potential for runoff and erosion.

The potential for accidental releases of chemicals would also be present at the construction site. Once released, substances such as fuels, oils, paints, concrete, and solvents could be transported to nearby surface waterways, the stormwater drainage system, and/or groundwater in stormwater runoff, wash water, and dust-control water, potentially reducing the quality of the receiving waters. Erosion and construction-related wastes have the potential to degrade water quality and beneficial uses if runoff flows into waterways, potentially altering the dissolved oxygen content, temperature, pH, suspended sediment and turbidity levels, and/or nutrient content of those waterways or causing toxic effects in the aquatic environment. Therefore, project-related construction activities could violate water quality standards or cause direct harm to aquatic organisms.

As described in Chapter 2, “Alternatives,” the project would comply with LEED®’s SS Prerequisite 1: Construction Activity Pollution Prevention; the Sacramento County Land Grading and Erosion Control Ordinance; and the SWRCB’s NPDES stormwater permit for general construction activity (Order 2009-0009-DWQ).

As described above in “Assumptions,” one of the objectives of the project is to achieve a minimum of the LEED® Silver rating, which would require completion of LEED’s SS Prerequisite 1: Construction Activity Pollution Prevention.

Fulfillment of this prerequisite would reduce pollution by controlling soil erosion, waterway sedimentation, and airborne dust generation through compliance with the Sacramento County Land Grading and Erosion Control Ordinance. This ordinance applies to projects disturbing 350 cubic yards or more of soil, or clearing or grubbing on 1 or more acres of land and requires that an erosion and sediment control plan be prepared that specifies BMPs. The erosion and sediment control plan would present a site map and a description of BMPs designed to control dust and stabilize the construction site road and entrance and a description of the methods of storage and disposal of construction materials. Appropriate BMPs for the erosion and sediment control plan will include, but would not be limited to, the following practices:

- Scheduling—Develop a schedule that includes sequencing of construction activities with the implementation of appropriate BMPs. Perform construction activities and control practices in accordance with the planned schedule. Schedule work to minimize soil-disturbing activities during the rainy season. Schedule major grading operations for the dry season when practical. Monitor the weather forecast for rainfall and adjust the schedule as appropriate.

- Erosion control—Cover exposed excavated walls to reduce their exposure to rainfall. Preserve existing vegetation where feasible; apply mulch or hydroseed areas until permanent stabilization is established; and use soil binders, geotextiles and mats, earth dikes and drainage swales, velocity dissipation devices, slope drains, or polyacrylamide (a soil conditioner) to protect soil from erosion.

- Wind erosion—Apply water or other dust palliatives to prevent dust nuisance; prevent overwatering that can cause erosion. Alternatively, cover small stockpiles.

- Sediment control—Install silt fences, sediment basins, sediment traps, check dams, fiber rolls, sand or gravel bag barriers, straw bale barriers, vegetated swales, approved chemical treatment, storm drain inlet protection, or other LID measures to minimize the discharge of sediment. Cover all stockpiled soil until it is needed. Cover all soil in haul trucks.

- Tracking controls—Stabilize the construction site entrance to prevent tracking of sediment onto public roads by construction vehicles. Stabilize on-site vehicle transportation routes immediately after grading to prevent erosion and control dust.

- Litter control—Remove litter at least once daily from the construction site. Dispose of packing materials immediately in an enclosed container.

Before grading begins, Reclamation and DWR would also obtain coverage under the SWRCB's NPDES stormwater permit for general construction activity (Order 2009-0009-DWQ), including preparation and submittal of a project-specific SWPPP at the time the NOI to discharge is filed. A copy of the approved SWPPP

would be maintained and available at all times on the construction site. The SWPPP and other appropriate plans would identify and specify:

- the implementation of approved local plans, nonstormwater management controls, permanent postconstruction BMPs, and inspection and maintenance responsibilities;
- the pollutants that are likely to be used during construction that could be present in stormwater drainage and nonstormwater discharges, including fuels, lubricants, and other types of materials used for equipment operation;
- the means of waste disposal;
- spill prevention and contingency measures, including measures to prevent or clean up spills of hazardous waste and of hazardous materials used for equipment operation, and emergency procedures for responding to spills;
- personnel training requirements and procedures that shall be used to ensure that workers are aware of permit requirements and proper installation methods for BMPs specified in the SWPPP;
- the appropriate personnel responsible for supervisory duties related to implementation of the SWPPP; and
- the effective combination of robust erosion and sediment control BMPs and construction techniques accepted by the local jurisdictions for use in the project area at the time of construction that would reduce the potential for runoff and the release, mobilization, and exposure of pollutants, including existing mine tailings, from project-related construction sites. These may include temporary erosion control and soil stabilization measures, coir logs, sedimentation ponds, stormwater inlet protection, and silt fences. Drainage swales, ditches, and/or earth dikes/berms would be used to control erosion and runoff by conveying surface runoff down sloping land, intercepting and diverting runoff to a channel or the stormwater drainage system, preventing sheet flow over sloped surfaces, preventing runoff accumulation at the base of a grade, and avoiding flood damage along roadways and facility infrastructure. Where applicable, BMPs identified in the SWPPP would be in place throughout all site work and construction activities. Permanent vegetative cover would be established to reduce erosion in areas disturbed by construction by slowing runoff velocities, trapping sediment, and enhancing filtration and transpiration.

Preparing and implementing an erosion and sediment control plan specifying BMPs, as required in LEED SS Prerequisite 1, as well as implementing the required SWPPP, would reduce the potential for contaminants, sediments, or pollutants in stormwater runoff to enter the stormwater drainage system or receiving waters during construction. This **direct** impact would be **less than significant**. **No indirect impact** would occur.

Alternative 1
As described for the Proposed Action, construction activities for Alternative 1 would involve grading and movement of earth, which would alter on-site drainage patterns and could generate sediment, erosion, and other nonpoint source pollutants in on-site stormwater that could drain to off-site areas or into the stormwater system and degrade local water quality. The Alternative 1 Site would create impervious surfaces over approximately 10.69 acres, including areas for the proposed buildings and parking areas. No drainages on-site lead to waterbodies; the JOC would be connected to existing stormwater system.

Preparing and implementing an erosion and sediment control plan specifying BMPs, as required in LEED SS Prerequisite 1, as well as implementing the required SWPPP, would reduce the potential for contaminants, sediments, or pollutants in stormwater runoff to enter the stormwater drainage system or receiving waters during construction. This **direct** impact would be **less than significant**. **No indirect impact** would occur.

Mitigation Measure: No mitigation is required.

Impact 3.8-2: Deplete Groundwater Supplies or Interfere with Groundwater Recharge Such That a Net Deficit in Aquifer Volume or a Substantial Lowering of the Local Groundwater Table Would Occur

No-Action
Under the No-Action Alternative, no construction activities would occur; therefore, the project would not increase on-site impervious surface, groundwater pumping, or on-site irrigation. **No direct or indirect impact** would occur.

Proposed Action
The Proposed Site is currently undeveloped. The campus option for the Proposed Action at the Proposed Site is estimated to result in 9.02 acres of impervious area, while the three-story option at the Proposed Site would result in 9.09 acres of impervious area. Impervious area at the sites would consist of the footprint areas to be covered by buildings and paved parking. The increase in impervious surface as a result of the project could interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a substantial lowering of the local groundwater table. Although the Proposed Action would result in an increase in impervious surface, the low recharge capability at the site, as described above in "Affected Environment," as well as the minor contribution of proposed on-site irrigation to support landscaping, would not be expected to substantially interfere with groundwater recharge.

Local groundwater is not presently used at the site and is not proposed as a source of water for the project. The project would access water by connecting to the existing potable-water system. Groundwater would not be used for any construction activities such as dust control, and construction dewatering is not expected to be necessary. No groundwater wells exist on-site and no groundwater

wells would be developed as part of the project; thus, no on-site groundwater wells would be used for water supplies during long-term project operations. Therefore, no groundwater pumping would occur on-site to supply water to the project. This **direct** impact would be **less than significant**. **No indirect impact** would occur.

Alternative 1
The Alternative 1 Site is also currently undeveloped. The increase in impervious area at the Alternative 1 Site would be 10.69 acres, which would consist of the footprint areas to be covered by buildings and paved parking. As described for the Proposed Action, because of the low recharge capability at the site, as well as the minor contribution of proposed on-site irrigation to support landscaping, the increase in impervious surfaces would not be expected to substantially interfere substantially with groundwater recharge at the Alternative 1 Site.

Local groundwater is not presently used at the Alternative 1 Site and is not proposed as a source of water for the project. In addition, groundwater would not be used for any construction activities, as described for the Proposed Action. Thus, no on-site groundwater wells would be used for water supplies during construction or long-term project operations and no groundwater pumping would occur on-site. This direct impact would be **less than significant**. **No indirect impact** would occur.

Mitigation Measure: No mitigation is required.

Impact 3.8-3: Potential Long-Term Increase in On- and Off-Site Flooding or Exceedance of Capacity of the Stormwater Drainage System from Increased Stormwater Runoff, Requiring the Construction or Expansion of Stormwater Drainage Facilities

No-Action
Under the No-Action Alternative, no construction activities would occur; therefore, the project would not result in an increase in impervious surface, contribute to exceeding the capacity of the stormwater drainage system, require the construction of new or expansion of existing stormwater drainage facilities, or result in an increase in flooding. **No direct or indirect impact** would occur.

Proposed Action
Implementing the project would increase the amount of impervious surfaces on the Proposed Site, thereby increasing surface runoff. This increase in surface runoff would result in an increase in both the total volume and the peak discharge rate of stormwater runoff and, therefore, could result in greater potential for on- and off-site flooding, the potential to exceed the capacity of existing or planned stormwater drainage systems, and the need for construction of new or expanded stormwater drainage facilities.

Although the Proposed Site has previously been disturbed, it is open space with groupings of trees and dispersed vegetation, which allows precipitation the opportunity to infiltrate and enter the groundwater table. Existing open space would be replaced with new structures and infrastructure, including buildings, walkways, and parking areas. These news structures and infrastructure would replace the permeable open space with impervious surfaces. The increase in impervious area would be approximately 9.02 acres for the campus option and 9.09 acres for the three-story option. The Proposed Site would, therefore, result in a net increase in impervious surface area and, without implementation of stormwater management controls, would result in an increase in the total or peak runoff volume from the site.

Potential changes to the hydrologic and geomorphic processes in a watershed as a result of impervious surfaces and drainage infrastructure from urbanization are referred to as "hydromodification." Hydromodification intensifies the erosion process and the transport of sediments. Hydromodification often leads to changes in the geometry of a stream channel and in streambed and streambank properties. These changes can result in degraded and lost riparian habitat. The changes can also deposit sediment downstream, causing flooding problems. The Proposed Action would connect to the existing stormwater system and would not discharge directly into natural waterways.

To eliminate any flow increase and exceedances of the capacity of existing or planned stormwater drainage systems, stormwater detention facilities may be required to maintain peak storm flows at no greater than the level existing before development. As required to comply with the Sacramento MS4 permit, detention basins, swales, and other stormwater quality treatment techniques (BMPs) would be required that would involve treatment methodologies as described in the *Stormwater Quality Design Manual* (SSQP 2007). The project would be categorized under the "commercial" project category, with impervious area greater than or equal to 1 acre, and would therefore be subject to the requirements of the Stormwater Quality Design.

Runoff reduction measures would be required to infiltrate, filter, store, evaporate, and detain runoff close to its source, where possible. The *Sacramento City/County Drainage Manual* (Sacramento County 1996) includes drainage design standards to meet local drainage regulations and presents design charts for estimating surface water runoff peak flows and volumes for the analysis and design of drainage facilities with less than 640 acres of contributing area in the city and county of Sacramento. However, since detailed engineering designs and specifications have not been completed for the Proposed Action or reviewed by Sacramento County, this **direct** impact would be **potentially significant**. **No indirect impact** would occur.

Alternative 1
Although the Alternative 1 Site is also previously disturbed, it primarily consists of grasses and has no developed structures on it. Development of the project would result in a net increase in impervious area of approximately 10.69 acres.

As described above under "Affected Environment," the area to the east of the Alternative 1 Site is currently known to experience localized flooding issues associated with undersized drainage facilities along Sunrise Boulevard south of White Rock Road, which results in the discharge of drainage into the Folsom South Canal (City of Rancho Cordova 2006a:4.9-6). Existing flooding, however, is confined to the eastern side of the Folsom South Canal along Sunrise Boulevard (Booth, pers. comm., 2011). Stormwater facilities for the proposed JOC facility would likely connect to the existing municipal system located to the west of the Alternative 1 Site, along Kilgore Road at Crawford Drive or further north.

Without implementation of stormwater management controls, development of Alternative 1 would result in a net increase in the total or peak runoff volume from the site. This increase in total of peak runoff volume from the site would have the potential to exceed the capacity of existing or planned stormwater drainage systems and could require the construction of new or expanded stormwater drainage facilities. Although Alternative 1 would not exacerbate existing localized flooding along Sunrise Boulevard to the east of the Folsom South Canal, detailed engineering designs and specifications have not been completed or submitted to or approved by the city of Rancho Cordova. This **direct** impact would be **potentially significant**. **No indirect impact** would occur.

Mitigation Measure 3.8-3: Prepare, Submit, and Implement a Final Drainage Plan

Reclamation and DWR will provide a final drainage plan for the Proposed Site to the county of Sacramento for review before construction beings, or will provide a final drainage plan for the Alternative 1 Site to the city of Rancho Cordova for review and approval before approval of a grading plan and building permit. The drainage plan will demonstrate that project-related on-site runoff would be appropriately contained in detention basins or managed through other improvements (e.g., source controls using LID techniques) to reduce potential flooding from surface water runoff. The plans will include, but will not be limited to, the following items:

- a drainage system report in accordance with the County Improvement Standards;
- a drainage system map including subwatershed boundaries and the property's location within the larger watershed, predevelopment and postdevelopment terrain at 1-foot contour intervals based on an on-site survey and stamped and signed by a licensed land surveyor or registered civil engineer, and the location of all existing and proposed drainage features;

- an accurate calculation of pre-project and post-project runoff for the final design scenario, obtained using appropriate engineering methods, that accurately evaluate potential changes to runoff, including increased surface runoff;
- runoff calculations for the 100-year (0.01 AEP) storm event (and other, smaller storm events as required) and the drainage facility designs that are appropriately sized to accommodate a 100-year storm event;
- project-specific standards for installing drainage systems; and
- an evaluation of potential for increased erosion on adjacent properties from drainage modifications.

Any reduction in runoff as a result of design features will be quantified based on the runoff reduction credit system methodology described in the Stormwater Quality Design Manual (SSQP 2007:Appendix D4). Proposed detention basins and other water quality BMPs will be sized to handle these runoff volumes.

The final drainage plan will demonstrate that 100-year (0.01 AEP) flood flows will be appropriately channeled and contained to limit peak discharges to pre-project levels, such that the risk to people or damage to structures within or downgradient of the project site will not occur and the capacity of the stormwater drainage system will not be exceeded or require expansion.

Responsibility: Reclamation and DWR

Timing: Before construction begins (Proposed Site) or approval of grading plan and building permit (for Alternative 1 Site)

Implementing Mitigation Measure 3.8-3 would reduce this impact to a **less-than-significant** level for the Proposed Action and Alternative 1 because it would reduce the potentially significant impact associated with the potential increased risk of flooding from increased stormwater runoff by using appropriately sized detention basins, swales, and other stormwater BMPs and LID techniques. Reclamation and DWR would demonstrate to the appropriate regulatory agency that the project would conform with applicable State and local regulations regarding surface water runoff, including the procedures outlined in the *Sacramento City/County Drainage Manual* (Sacramento County 1996), which are designed to meet or exceed applicable State and local regulations pertaining to stormwater runoff. Specific standards for project design as required in this mitigation measure would, when implemented, safely convey on-site flows through the project site and would prevent increased flood hazard, exceedances of the stormwater drainage system, and the necessity to expand stormwater facilities by limiting peak discharges to at or below pre-project levels.

Impact 3.8-4: Potential Long-Term Degradation of Water Quality Caused by an Increase in Stormwater Runoff

No-Action

Under the No-Action Alternative, no construction activities would occur; therefore, the No-Action Alternative would not increase the amount of impervious surface on the sites or increase the intensity of land use on the sites, either of which could contribute to the degradation of the quality of stormwater runoff discharged to the stormwater system. **No direct or indirect impact** would occur.

Proposed Action

Changes in the intensity of land use and increases in impervious surfaces as a result of development at the Proposed Site could increase the volume of runoff that may cause or contribute to long-term discharges of urban contaminants (e.g., sediment, oil and grease, fuel, trash, pesticides, fertilizer) into the stormwater system and receiving waters, if stormwater facilities are not properly designed, managed, or monitored.

Project development would result in changes to land use and infiltration characteristics of the project site and would introduce new sources of water pollutants, thereby producing "urban runoff." Water quality degradation from the discharge of urban runoff (from impermeable surfaces and other project features) occurs when stormwater or landscaping irrigation runoff enters the storm drain system, carrying contaminants found in urban environments.

Pollutants contained within urban runoff may include sediment, oxygen-demanding substances (e.g., organic matter), nutrients (primarily nitrogen and phosphorus), heavy metals, bacteria, oil and grease, and toxic chemicals, which can degrade receiving water quality. Increases in vehicle traffic and in the size of parking facilities could cause a larger amount of pollutants to reach storm water. Leaks of fuel or lubricants, tire wear, and fallout from exhaust contribute petroleum hydrocarbons, heavy metals, and sediment to the pollutant load in runoff.

To reduce the potential for adverse water quality impacts, project designs must comply with the Sacramento MS4 permit (CAS082597) and Sacramento County New Development Standards and Stormwater Quality Design Manual, to include BMPs for stormwater quality control such as source control, runoff reduction, and treatment control measures. BMPs in the *Stormwater Quality Design Manual* include a number of options for stormwater treatment, as well as sizing, design, and maintenance criteria. The stormwater designs in the manual reflect the LID philosophy, which the manual defines as "a stormwater management strategy that emphasizes conservation and use of existing natural site features integrated with distributed, small-scale stormwater controls to more closely mimic natural hydrologic patterns in residential, commercial, and industrial settings" (SSQP 2007:1-8).

Source control BMPs may include the use of LID techniques, such as surface swales; replacement of conventional impervious surfaces with pervious surfaces (e.g., porous pavement); disconnection of impervious surfaces, green roof; and trees planted to intercept storm water.

However, because detailed engineering designs and BMP specifications of source and treatment control measures have not been completed for the Proposed Action or reviewed by Sacramento County, this **direct** impact would be **potentially significant**. **No indirect impact** would occur.

Alternative 1

As described for the Proposed Action, changes in the intensity of land use and increases in impervious surfaces as a result of development at the Alternative 1 Site could result in the long-term degradation of water quality from an increase in stormwater runoff discharged to the stormwater drainage system. Overall, the potential exists for Alternative 1 to cause or contribute to long-term discharges of urban contaminants (e.g., sediment, oil and grease, fuel, trash, pesticides, fertilizer) into the stormwater system and receiving waters compared with existing conditions, if stormwater facilities are not properly designed, managed, or monitored.

As with the Proposed Action, Alternative 1 would exceed the 1-acre threshold specified in the Sacramento MS4 permit (CAS082597) and would be required to incorporate permanent stormwater quality treatment measures to conform with applicable Sacramento County ordinances and State and Federal law. However, because detailed engineering designs and BMP specifications of source and treatment control measures have not been completed for Alternative 1 or submitted to or approved by the city of Rancho Cordova, this **direct** impact would be **potentially significant**. **No indirect impact** would occur.

Mitigation Measure 3.8-4: Design and Install BMPs and Develop and Implement a Stormwater Management Plan

Reclamation and DWR will incorporate BMPs to control and treat stormwater pollution at the source into the project designs. All BMPs shall be designed in accordance with the Sacramento County New Development Standards and Stormwater Quality Design Manual.

Reclamation and DWR will also prepare a stormwater management plan (SWMP) that describes the specific management actions to minimize contaminant discharges to the maximum extent practicable and identifies best conventional technology/best available technology requirements to address compliance with water quality standards. The plan will describe BMPs and maintenance timetables. The detailed stormwater management plan shall be prepared by a qualified engineer retained by Reclamation or DWR and drafts of these plans will be submitted (for the Proposed Site) to the Sacramento County Department of Water Resources Drainage Development Hydrology and Floodplain Management

Section for review or (for the Alternative 1 Site) to the city of Rancho Cordova Community Development and Public Works Departments for review and approval. These plans will include finalized water quality improvements and further detail the structural and nonstructural BMPs proposed for the project. The plans will include the elements described below:

- A map indicating the location of on-site stormwater facilities, including structural BMPs designed to remove pollutants from site runoff. Structural BMPs may include surface swales, infiltration trenches, catch basins, detention basins, impervious surfaces disconnection, and trees planted to intercept storm water.

- A quantitative analysis of proposed structural BMPs, including predevelopment and postdevelopment calculations will demonstrate that the proposed water quality BMPs will not exceed water quality requirements established by the Central Valley RWQCB and will include details regarding the size, geometry, and functional timing of storage and release pursuant to Sacramento County's and the city of Rancho Cordova's Joint NPDES MS4 Permit Development Standards Plan (i.e., the *Stormwater Quality Design Manual* [SSQP 2007] per NPDES Permit No. CAS082597 WDR Order No. R5-2008-0142, page 46).

- A description of proposed source control programs intended to prevent pollutants from contacting site runoff, leaving the site, and entering the municipal storm drain system or local waterways. Source control measure may include storm drain cleaning, storm drain markings, waste minimization, prevention of spills and illegal dumping, properly designed waste management areas, and effective management of trash collection areas.

- A description of the management and maintenance requirements for proposed design features and BMPs and responsible parties for maintenance and funding.

  Responsibility: Reclamation and DWR

  Timing: Before construction begins (Proposed Site) or issuance of grading permits (Alternative 1 Site)

Implementing Mitigation Measure 3.8-4 would reduce this impact to a less-than-significant level for the Proposed Action and Alternative 1 because it would require that a BMP and water quality maintenance plan be prepared and implemented, and that a performance standard of not exceeding water quality requirements established by the Central Valley RWQCB will be met prior to project construction. Implementation of the SWMP would demonstrate that the project would conform to applicable State and local regulations restricting surface water runoff, including the *Stormwater Quality Design Manual* (SSQP 2007).

The permanent BMPs proposed for the stormwater treatment system and described in detail in the SSQP have been shown to be effective in reducing contaminant levels in urban runoff (see Table 3.8-1) (EPA 1999: CASQA 2003).

Table 3.8-1
Expected Pollutant Removal Efficiency of BMPs

BMP Type	Typical Pollutant Removal (%)				
	Suspended Solids	Nitrogen	Phosphorus	Pathogens	Metals
Structural BMPs					
Dry detention basins	30–65	15–45	15–45	<30	15–45
Wet detention/retention basins	50–80	30–65	30–65	<30	50–80
Infiltration basins	50–80	50–80	50–80	65–100	50–80
Infiltration trenches, dry wells	50–80	50–80	15–45	65–100	50–80
Porous pavement	65–100	65–100	30–65	65–100	65–100
Grassed swales	30–65	15–45	15–45	<30	15–45
Vegetated filter strips	50–80	50–80	50–80	<30	50–80
Surface sand filters	50–80	<30	50–80	<30	50–80
Other media filters	65–100	15–45	<30	<30	50–80

Note: BMP = best management practices
Source: EPA 1999:5-54, Table 5-7

Impact 3.8-5: Placement of Buildings or Structures within a Designated 100- or 200-Year Flood Hazard Area

No-Action

Under the No-Action Alternative, no construction activities would occur; therefore, the No-Action Alternative would not place any buildings or structures within a designated 100- or 200-year flood hazard area. N**o direct** or **indirect impact** would occur.

Proposed Action

One of the criteria used by Reclamation and DWR for siting the new JOC was that the project site must be situated above the 200-year floodplain elevation. According to the most recent version of FEMA floodplain maps, both the Proposed Site and the Alternative 1 Site are located outside of 100- or 200-year floodplain areas (FEMA 2010). Preliminary DWR maps also indicate that the Proposed Site is not located within an area prone to flooding (DWR 2008). This **direct** impact would be **less than significant**. **No indirect impact** would occur.

Alternative 1

The Alternative 1 Site was also not identified on the preliminary DWR maps as being located within 100- or 200-year floodplain areas (DWR 2008), and it is not

located within a mapped FEMA flood hazard area (Sacramento County 2007:374). This **direct** impact would be **less than significant**. **No indirect impact** would occur.

Mitigation Measure: No mitigation is required.

Impact 3.8-6: Potential Exposure of People or Structures to a Significant Risk of Flooding as a Result of the Failure of a Levee or Dam

No-Action
Under the No-Action Alternative, no construction activities would occur; therefore, the No-Action Alternative would not provide housing, employment, or construct any structures at the project sites that would have potential exposure to a significant risk of flooding as a result of the failure of a levee or dam. **No direct or indirect impact** would occur.

Proposed Action
According to the Folsom Dam Failure Flood Area Map prepared by Sacramento County, the Proposed Site would be inundated as a result of Folsom Dam failure (Exhibit 3.9-2). Failure of levees, dikes, or other flood control structures on the American River, upstream of the project site, could also result in inundation of the site. Although such failures would expose people or structures to flooding, Sacramento County has determined that "the occurrence of dam inundation (due to dam or dike failure) is based on extremely remote conditions" (Sacramento County 2007) and does not consider the risk to be a significant planning consideration.

For planning purposes, the Sacramento County Office of Emergency Services (OES), with information from Reclamation and DWR, has responsibility for providing local governments with critical hazard response information, including information related to potential flooding from levee failure or dam inundation. Further, the Proposed Site is located in Sacramento County, which implements the Automated Local Evaluation in Real Time (ALERT) system.

Reclamation and USACE are also working to address public safety downstream of Folsom Dam and improve flood protection by modifying the dam and its appurtenant structures as part of the Folsom Dam Safety and Flood Damage Reduction Joint Federal Project. In addition, a dam failure plan, the flooding ALERT system, and evacuation procedures are integrated into Sacramento County's Emergency Operations Plan (Sacramento County 2008:Part 2, page 1).

Feasible mitigation measures for proposed new development within areas at risk of levee or dam failure include reducing the amount of stormwater runoff, establishing minimum building standards to protect against flood damage, developing emergency and evacuation procedures for potential flooding events, establishing programs to properly inspect and maintain levee systems, and coordinating with lead agencies on levee improvements. These feasible mitigation

measures have already been established as regulatory requirements and/or Reclamation and DWR policies and implementation programs. As described above, the Proposed Action would have approximately 9 acres of impervious surface that could contribute stormwater runoff to the American River; this quantity of additional storm water would be undetectable in relation to American River flows that exceed 100,000 cfs during substantial flood threats from major storm events. Thus, the implementation of the Proposed Action would not substantially contribute to an increased potential for dam or levee failure.

With the established regulatory requirements and/or Reclamation and DWR policies and implementation programs, and given that a dam failure event has an extremely low probability of occurring and is not considered to be a reasonably foreseeable event, this **direct** impact would be **less than significant**. **No indirect impact** would occur.

Alternative 1
The Alternative 1 Site is located in the city of Rancho Cordova which includes drainage/flood control features including detention basins, channels, levees along the American River and Folsom Dam. A levee is also located along the western side of the Folsom South Canal (Booth, pers. comm., 2011); however, according to the most recent FEMA map, the Alternative 1 Site is not shown as protected by a levee (FEMA 2010).

The Alternative 1 Site would also be inundated as a result of Folsom Dam failure (Exhibit C8-2). Similar to the Proposed Site, such failure would expose people or structures to flooding, though the likelihood of such occurrence is extremely remote.

For the same reasons described above for the Proposed Site, a dam or levee failure event has an extremely low probably of occurring and is not considered a reasonably foreseeable event. This **direct** impact would be **less than significant**. **No indirect impact** would occur.

Mitigation Measure: No mitigation is required.

Residual Significant Impacts
With implementation of the mitigation measures listed above, project implementation would not result in any residual significant impacts related to increased risk of flooding from stormwater runoff, from a 200-year flood, from water quality effects from long-term urban runoff, from short-term alteration of drainages and associated surface water quality and sedimentation, or from lowering of groundwater levels.

3.8.3 Cumulative Impacts
The geographic scope for analyzing the cumulative effects of hydrology, drainage, and water quality was evaluated to the extent to which local and regional activities can affect hydrologic conditions in Sacramento County. Local hydrology, drainage, and water quality conditions are often affected by regional activities. Past and present projects from

areas within the Sierra Nevada (e.g., the construction of dams and reservoirs, mining operations, logging operations, and urban development) to projects within the Sacramento–San Joaquin Delta (e.g., water supply diversions, agricultural diversions, flood control projects, urban development, and river channelization) affect hydrology and water quality conditions in Sacramento County. However, the focus is on effects to water bodies in the project vicinity, and immediately upstream and downstream (e.g., the lower American River and Folsom South Canal), and how the JOC Relocation Project may affect the hydrology, drainage, and water quality conditions locally.

Regarding construction-related impacts on water quality, all future development within Sacramento County and the city of Rancho Cordova would be required to conform to applicable waste discharge requirements and implement a SWPPP with BMPs similar to those recommended for the project. Cumulative impacts on water quality associated with construction of other development projects would, therefore, be less than significant. A cumulatively significant impact would not occur, and the project itself would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to construction-related water quality impacts.

Long-term operations of cumulative development projects have some potential to exceed the capacity of existing and planned sewers and degrade the quality of stormwater discharged to those sewers because of further reductions in open space and other pervious surfaces and changes in intensity and types of land use. However, individual projects will likely be required to provide on-site treatment, volume reduction, and/or reduced peak runoff from storm events. The SSQP coordinates and implements compliance with the Sacramento MS4 permit and the SQIP development element requires stormwater quality treatment and/or BMPs in project design for both construction and operation. The Sacramento MS4 permit also identifies the need to address hydromodification as a result of impervious surfaces and drainage infrastructure from urbanization and addresses the need for LID controls to more closely mimic the predeveloped hydrologic condition. As a result of these planning efforts and policies, a cumulatively significant impact would not occur, and the project itself would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to the long-term operation of development projects.

The project would include increases in impervious surfaces and surface runoff generated. However, soils at the Proposed Site and the Alternative 1 Site already have a low capacity for groundwater recharge and no groundwater pumping is proposed as part of construction or operation of the project. In addition, landscape irrigation activities or LID features, such as detention basins, may contribute to groundwater recharge if they are sited or occur in areas that have conducive soils. Therefore, project impacts on groundwater levels and recharge would be less than significant. The related projects would result in an increase of impervious surfaces at each individual site. Groundwater pumping and a moderate to high capacity for groundwater recharge may occur at the related project sites. Therefore, the related project themselves could result in significant impacts related to groundwater recharge. However, the JOC Relocation Project would not require groundwater pumping and the native soils at both sites have an extremely low capacity for groundwater recharge; therefore, the project would not result in a

cumulatively considerable incremental contribution to a significant cumulative impact related to groundwater levels and recharge.

Cumulative projects would all be expected to demonstrate compliance with regulatory requirements for reducing water quality impacts, such as control measures identified in NPDES permits, SWPPPs, Grading and Erosion Control Ordinance (Chapter 16.44 of the existing County Code), Stormwater Ordinance, and mitigation measures under CEQA. By such compliance, significant impacts on the physical environment related to water quality and runoff would be avoided or reduced to a less-than-significant level. No additional mitigation would be required related to cumulative impacts. Overall, the project would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to hydrology and water quality.

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3.9 Land Use and Planning, Agriculture, and Forestland Resources

This section addresses land use and planning, agriculture, and forestland resources. It describes the relationship between the project and existing adopted State, regional, and local planning goals and policies related to land use; addresses existing land uses on and adjacent to the project sites; and analyzes the potential impacts of the project on adjacent and nearby land uses. The section also identifies agricultural and forest designations and uses in the area of the Proposed Site and the Alternative 1 Site and evaluates the impact of the project on these areas.

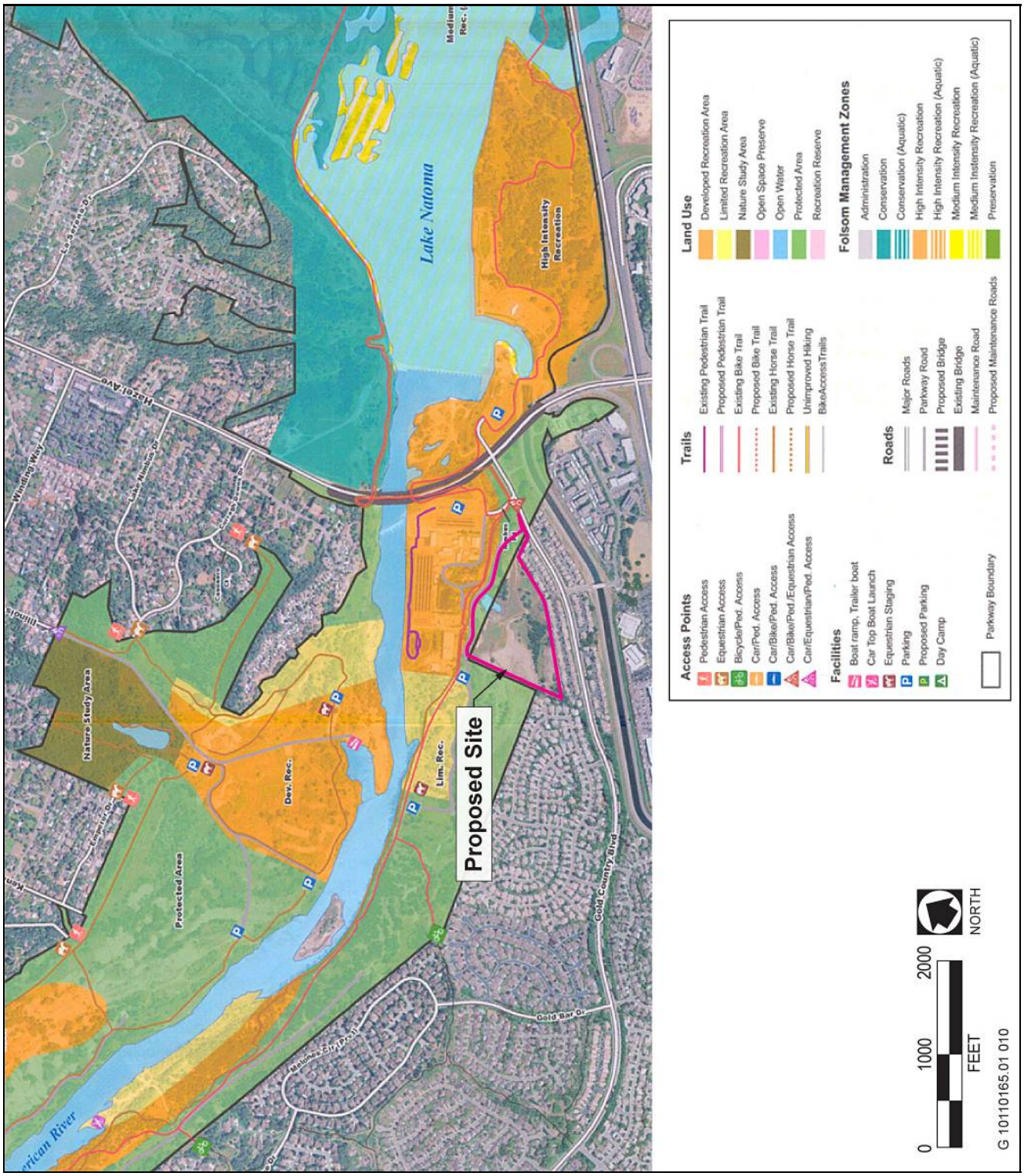
3.9.1 Affected Environment

Environmental Setting

Existing and Adjacent Land Uses

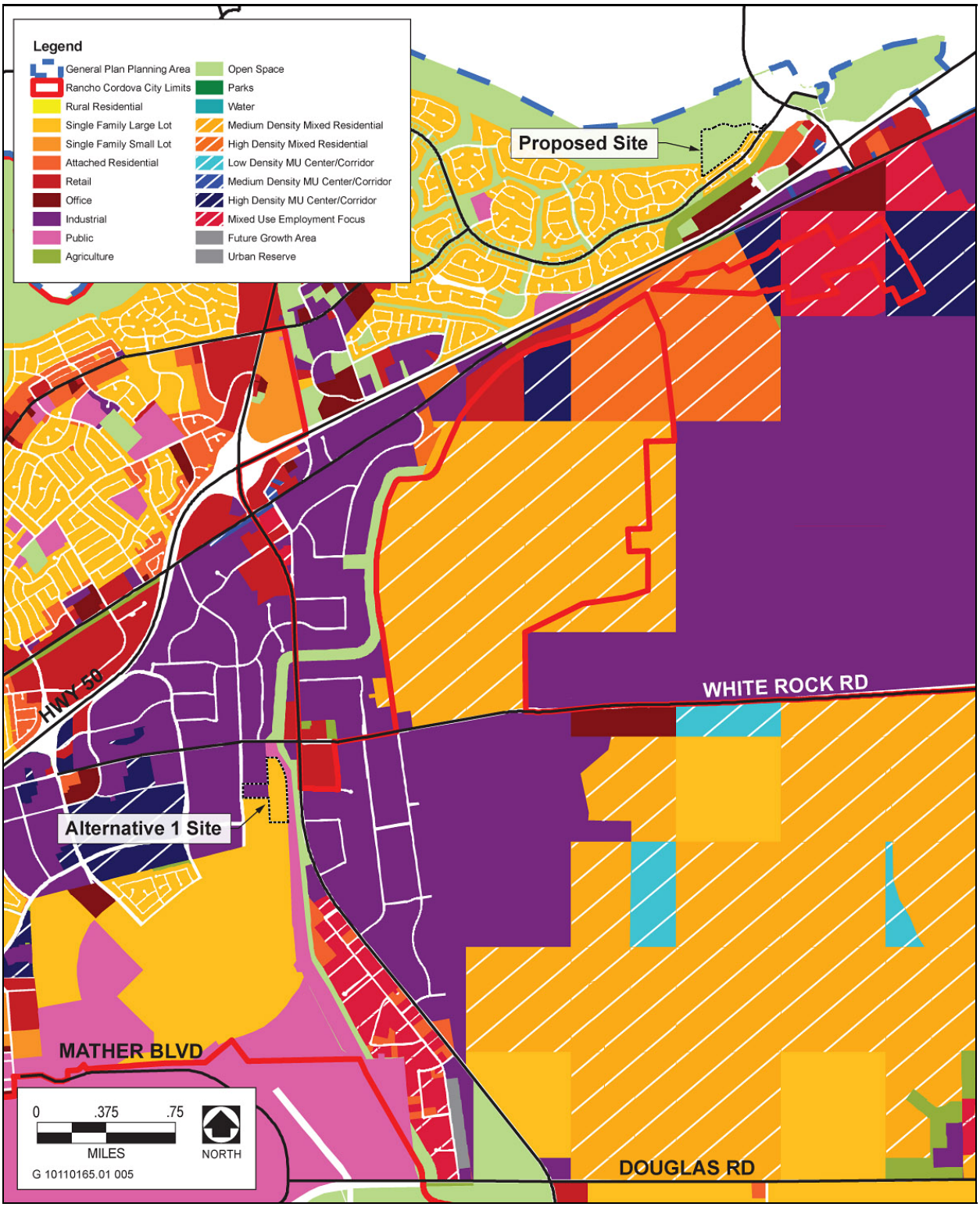
Proposed Site The approximately 25.5-acre Proposed Site, including access on Nimbus Road, is located on Federal land within an unincorporated portion of Sacramento County. The Proposed Site generally comprises undeveloped land containing ponded areas, scattered foothill pines, stands of live oaks, lower growing shrubs, and grasslands. Past mining activity is evident from the dredge tailings that are spread throughout the parcel.

The Proposed Site is located south of the Nimbus Fish Hatchery, which includes outdoor ponds, fish runs, and administrative buildings. One- and two-story single-family residential developments border the south, southeastern, and southwestern property boundaries. The Jedediah Smith Memorial Trail passes adjacent to the northern edge of the Proposed Site; Reclamation has provided an easement to California State Parks for this use. Areas to the west, consisting of open space and trails, are within the American River Parkway (Exhibit 3.9-1). The Proposed Site is outside the American River Parkway Plan. Nimbus Road, located on the northern edge of the Proposed Site, intersects Gold Country Boulevard and provides access to the Proposed Site as well as the DFG regional office and parking for the American River Parkway. Although the American River Parkway Plan indicates that this road is a “protected area,” the land is owned by Reclamation and is used by DFG and California State Parks through a 50-year license granted in 1968 by Reclamation to DFG for the purposes of construction, operation, and maintenance of a free public fishing access road. North of Nimbus Road are the DFG regional office and Nimbus Fish Hatchery; both of these are indicated as “developed recreation area” in the American River Parkway Plan but are located on land owned by Reclamation. (Parcel boundaries for these properties are depicted in Exhibit 2-3 and are visible in Exhibits 3.9-3 and 3.9-4.) Pedestrian and bicycle access to the Proposed Site would be provided by the Jedediah Smith Memorial Trail.



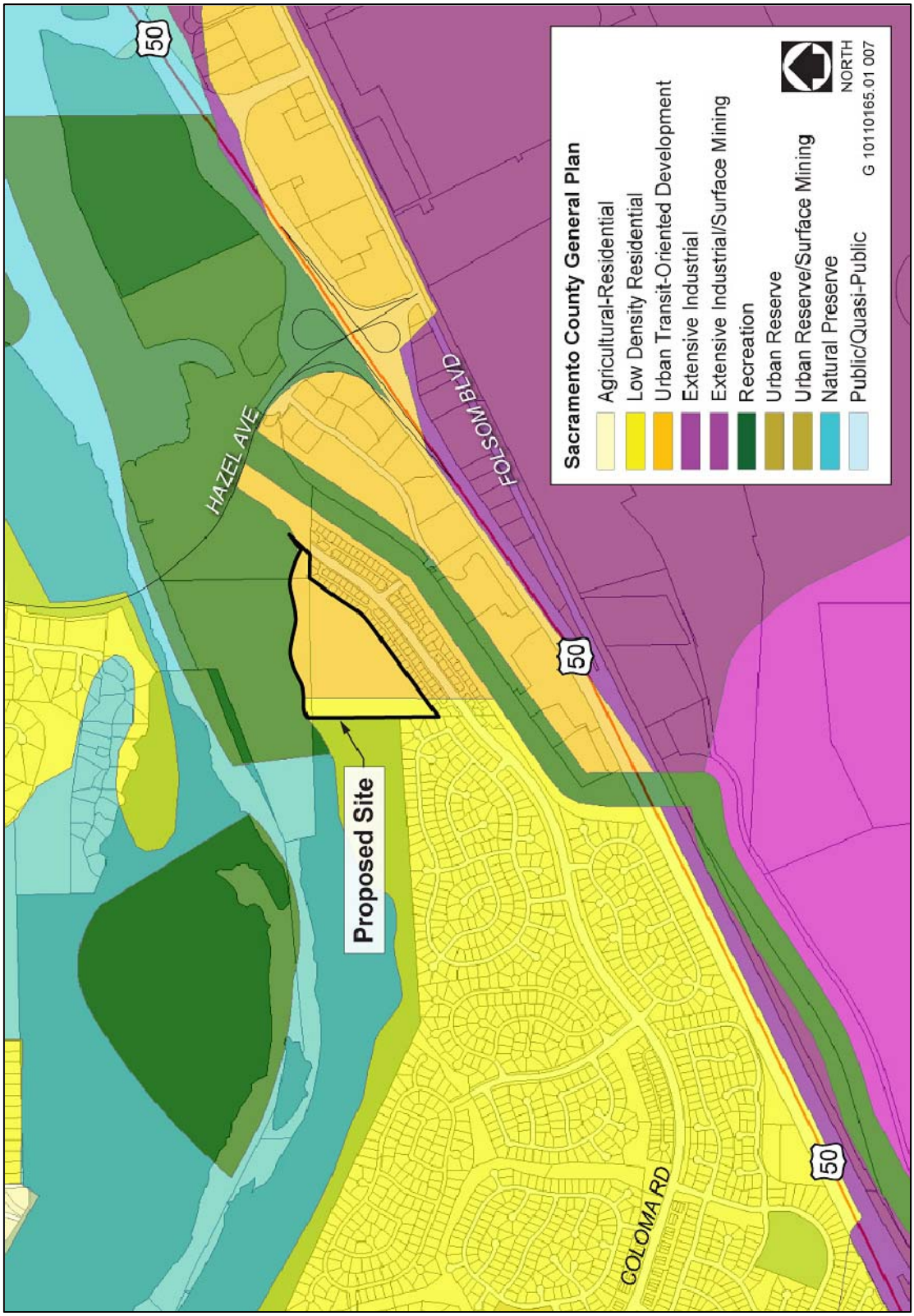
Source: Sacramento County 2008a; adapted by AECOM in 2010

Exhibit 3.9-1: Land Use Designations of the American River Parkway Plan



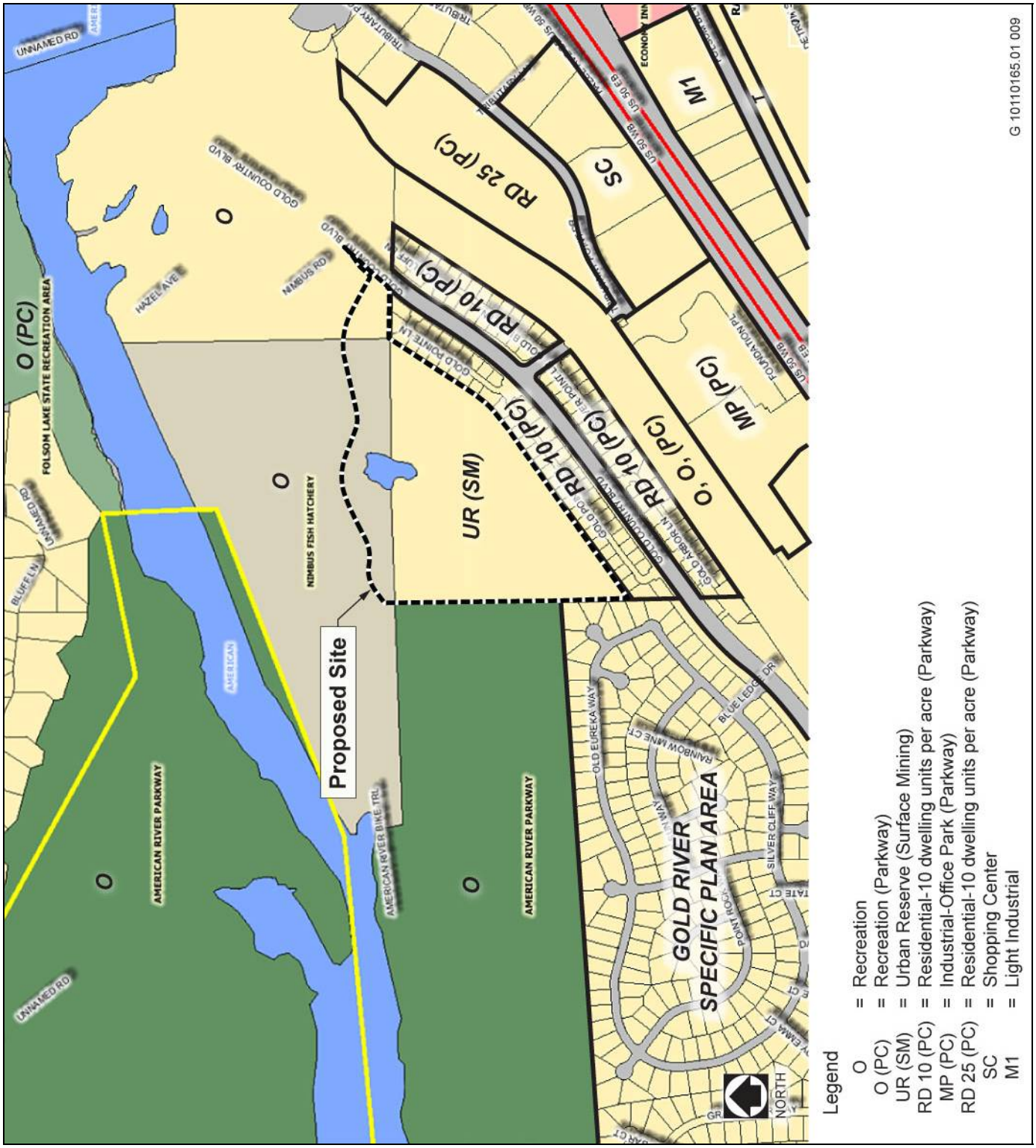
Source: SACOG and Valley Vision 2004; adapted by AECOM in 2010

Exhibit 3.9-2: SACOG Blueprint Land Use Designations



Source: Sacramento County 1993; adapted by AECOM in 2010

Exhibit 3.9-3: Sacramento County Land Use Designations



Source: Sacramento County 2010; adapted by AECOM in 2010

Exhibit 3.9-4: Sacramento County Zoning Districts

Alternative 1 Site The Alternative 1 Site consists of approximately 21.2 acres on a privately owned parcel within the city of Rancho Cordova. Dredge tailings from past mining activities remain on the property. Vehicle and pedestrian access to this site would be provided by Kilgore Road or from Crawford Drive. (Parcel boundaries for these properties are depicted in Exhibit 2-6.)

Land uses immediately adjacent to the Alternative 1 Site include open space to the north, one- and two-story residences to the south, and commercial and office buildings to the southwest and west.

The Alternative 1 Site is directly adjacent to the Folsom South Canal bike trail along the east property line. This bike trial connects the Jedediah Smith Memorial Trail and Lake Natoma approximately 5 miles northeast of the Alternative 1 Site.

Agricultural Resources Important Farmland—including Prime Farmland, Farmland of Statewide Importance, and Unique Farmland—are defined together under the term "Agricultural Land" in CEQA (Public Resources Code [PRC] Sections 21060.1 and 21095 and State CEQA Guidelines Appendix G). The Proposed and Alternative 1 Sites do not include any agricultural land designated as Important Farmland as defined in Appendix G of the State CEQA Guidelines, as amended.

In addition, Important Farmland is classified by the California Department of Conservation (DOC) as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance. The total acreage of Urban and Built-Up Lands and Other Lands are calculated by DOC but are defined by DOC as Agricultural Land. (The discussion of State plans, policies, regulations, and laws below provides further details.)

Proposed Site According to the Sacramento County Important Farmland map, published by DOC's Division of Land Resource Protection, the Proposed Site is considered to be Other Land. The Other Land designation is used for vacant, nonagricultural land that is surrounded by urban development. Land uses allowed under this category include low-density rural developments, brush, timber, wetland, and riparian areas that are not suitable for agricultural purposes, including grazing, strip mines, and borrow pits (DOC 2008).

Alternative 1 Site The Alternative 1 Site is designated by the Sacramento County Important Farmland map as Urban and Built-Up Land (DOC 2008). This type of land is designated for developed purposes such as residential, industrial, commercial, and construction.

Forestland Resources Forestland, as defined in PRC Section 12220(g), is land that can support 10% native tree cover of any species—including hardwoods—under natural conditions, and that allows for management of one or more forest resources—including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation—and other public benefits.

Proposed Site Approximately 4.8 acres of oak woodland are located on the Proposed Site. This community is characterized by interior live oak and valley oak species and primarily occurs along the southeastern half of the Proposed Site. These designations satisfy the requirements of PRC Section 12220(g) (see Impact 3.9-2, "Conversion of Forestland to Nonforest Uses" for more information).

Alternative 1 Site The Alternative 1 Site does not contain 10% native tree cover and therefore is not designated as forestland.

Regulatory Setting

Federal Plans, Policies, Regulations, and Laws The following Federal laws related to land use and planning are relevant to the project and are described in detail in Section 5.6, "Compliance with Related Laws, Rules, Regulations, and Executive Orders":

- Applicability of Local Zoning to Federal Lands

State Plans, Policies, Regulations, and Laws

State Planning and Zoning Laws California Government Code Section 65300 et seq. establishes the obligation of cities and counties to adopt and implement general plans. The general plan is a comprehensive, long-term, and general document that describes plans for the physical development of a city or county and of any land outside its boundaries that, in the city's or county's judgment, bears relation to its planning. The general plan addresses a broad range of topics, including, at a minimum, land use, circulation, housing, conservation, open space, noise, and safety. In addressing these topics, the general plan identifies the goals, objectives, policies, principles, standards, and plan proposals that support the city's or county's vision for the area. The general plan is a long-range document that typically addresses the physical character of an area over a 20-year period. Finally, although the general plan serves as a blueprint for future development and identifies the overall vision for the planning area, it remains general enough to allow for flexibility in the approach taken to achieve the plan's goals.

The State Zoning Law (California Government Code Section 65800 et seq.) establishes that zoning ordinances, which are laws that define allowable land uses within a specific district, are required to be consistent with the general plan and any applicable specific plans. When amendments to the general plan are made, corresponding changes in the zoning ordinance may be required within a reasonable time to ensure that the land uses designated in the general plan would also be allowable by the zoning ordinance (California Government Code Section 65860[c]).

California Important Farmland Inventory System and Farmland Mitigation and Monitoring Program The FMMP was established by the State of California in 1982 to continue the Important Farmland mapping efforts begun in 1975 by the U.S. Soil Conservation Service (SCS) (now called the Natural Resources Conservation Service [NRCS] of the U.S. Department of Agriculture). The intent of the SCS was to produce agricultural resource maps based on soil quality and land use across the nation. DOC sponsors the FMMP and is also responsible for establishing agricultural easements in accordance with PRC Sections 10250–10255.

As part of the nationwide agricultural land use mapping effort, the SCS/NRCS developed a series of definitions known as Land Inventory and Monitoring (LIM) criteria. The LIM criteria classify the land's suitability for agricultural production. Suitability includes both the physical and chemical characteristics of soils as well as the actual land use. Important Farmland maps are derived from the NRCS (formerly SCS) soil survey maps using the LIM criteria, and are available by county. The maps prepared by NRCS classify land into one of eight categories, which are defined as follows:

- **Prime Farmland**—Land that has the best combination of features for the production of agricultural crops.
- **Farmland of Statewide Importance**—Land other than Prime Farmland that has a good combination of physical and chemical features for the production of agricultural crops.
- **Unique Farmland**—Land of lesser quality soils used for the production of the state's leading agricultural cash crops.
- **Farmland of Local Importance**—Land that is of importance to the local agricultural economy.
- **Grazing Land**—Land with existing vegetation that is suitable for grazing.
- **Urban and Built-up Lands**—Land occupied by structures with a density of at least one dwelling unit per 1.5 acres.
- **Land Committed to Nonagricultural Use**—Vacant areas; existing lands that have a permanent commitment to development but have an existing land use of agricultural or grazing lands.
- **Other Lands**—Land that does not meet the criteria of the remaining categories. This optional designation allows local governments to provide detail on the nature of changes expected to occur in the future.

Important Farmland is classified by DOC as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance. The total acreage of Urban and Built-Up Lands and Other Lands are calculated by DOC and are defined by DOC as Agricultural Land. The designations for Prime Farmland, Farmland of Statewide Importance, and Unique Farmland, are defined together under the term "Agricultural Land" in CEQA (PRC Sections 21060.1 and 21095 and State CEQA Guidelines Appendix G).

State CEQA Guidelines Evaluation of Impacts on Forest Resources In 2010, the State adopted revisions to the State CEQA Guidelines, primarily to address the inclusion of greenhouse gas emission as an impact under CEQA. As part of this process, the evaluation of impacts on agricultural resources was expanded to include forest resources. The intent of this revision is to ensure that, in areas with at least 10% native tree cover, the removal of trees is addressed with regard to the potential impact on wildlife habitat,

carbon sequestration, and other values. The definition of "forest resources" is consistent with PRC Section 12220(g): land that can support 10% native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.

Regional and Local Plans, Policies, Regulations, and Ordinances The JOC Relocation Project is jointly proposed by Reclamation, a Federal agency, and DWR, a State agency. The Proposed Site is Federal property owned by Reclamation. A Federal agency operating on Federal land is not required to comply with regional or local plans, policies, regulations, or ordinances. However, a Federal agency normally will conform with local regulations and State laws that do not interfere with the agency's ability to "carry out the purposes of the government," such as building, health, and safety codes (*Fort Leavenworth R.R. v. Lowe*, 114 U.S. 525 [1885]).

Activities at the Proposed Site would not be required to comply with regional or local regulations, but Reclamation has committed to a "good neighbor" policy and would conform with those regulations to the extent that such compliance would not conflict with or hinder the mission and purposes of the agency or the departments located at the site. Activities at the Alternative 1 Site or Alternative 2 Site would take place on private property and would require full compliance with all regional and local regulations.

Sacramento Area Council of Governments' Sacramento Region Blueprint In December 2004, the Sacramento Area Council of Governments' (SACOG's) Board of Directors adopted the Sacramento Region Blueprint (Blueprint), a vision for growth that promotes compact, mixed-use development and more transit choices as an alternative to low-density development. It includes a greater range of housing products, reinvestment in already developed areas, protection of natural resource areas from urbanization, and more transportation choices. The Blueprint outlines a way for the region to grow through the year 2050 that is generally consistent with seven principles of "Smart Growth." These principles are summarized below (SACOG and Valley Vision 2004).

- **Transportation Choices:** Developments should be designed to encourage people to sometimes walk, ride bicycles, ride the bus, ride light rail, take the train, or carpool.
- **Mixed-Use Developments:** Building homes and shops, entertainment, office, and light industrial uses near each other can encourage active, vital neighborhoods.
- **Compact Development:** Creating environments that are more compactly built and use space in an efficient but aesthetic manner can encourage more walking, biking, and public-transit use, and shorten auto trips.
- **Housing Choice and Diversity:** Providing a variety of places where people can live—apartments, condominiums, townhouses, and single-family detached homes on varying lot sizes—creates opportunities for the variety of people who need them: families, singles, seniors, and people with special needs.

- **Use of Existing Assets:** In urbanized areas, development on infill or vacant lands, intensification of the use of underutilized parcels, or redevelopment can make better use of existing public infrastructure. This can also include rehabilitation and reuse of historic buildings, denser clustering of buildings in suburban office parks, and joint use of existing public facilities such as schools and parking garages.

- **Quality Design:** The design details of any land use development—such as the relationship to the street, setbacks, placement of garages, sidewalks, landscaping, the aesthetics of building design, and the design of the public rights-of-way—are factors that can influence the attractiveness of living in a compact development and facilitate the ease of walking and biking to work or neighborhood services.

- **Natural Resources Conservation:** This principle encourages the incorporation of public-use open space (such as parks, town squares, trails, and greenbelts) within development projects, above state requirements; it also encourages wildlife and plant habitat preservation, agricultural preservation, and promotion of environmentally friendly practices such as energy efficient design, water conservation and stormwater management, and planting of shade trees.

The Blueprint vision received broad support from most of its member agencies. The Blueprint is advisory, and therefore, does not establish land use restrictions for the Sacramento region. SACOG has no land use authority. Although it is only advisory, the Blueprint is the most authoritative policy guidance in the Sacramento region for long-term regional land use and transportation planning. A number of jurisdictions either are adopting the Blueprint concepts or are considering and encouraging projects consistent with the Blueprint. Further, the land uses in the *1993 City of Sacramento General Plan* generally reflect the types and intensity of land uses shown in the Preferred Blueprint Scenario, which envisions relatively higher overall residential densities than those currently in place.

The SACOG Blueprint designated the Proposed Site as Open Space and the Alternative 1 Site as Single Family Large Lot and Industrial (Exhibit 3.9-2). SACOG describes these land uses as follows:

- **Single Family Large Lot:** 4,000-square-foot average lot size (range from 4,000 square feet to 5,400 square feet);

- **Open Space:** passive-use areas, no development allowed; and

- **Industrial:** 20 employees per acre average (one-story buildings).

Sacramento County General Plan The *1993 County of Sacramento General Plan* (County General Plan) (Sacramento County 1993) provides an inventory of land supply within the County, and projects the amount and location of land and density, and intensity of development that would be required to accommodate future populations and economic growth. The majority of the Proposed Site and Nimbus Road is designated as Urban Transit-Oriented Development and the western portion of the Proposed Site is designated

as Low Density Residential (Exhibit 3.9-3). The County General Plan describes these land use designations as follows:

- The Urban Transit-Oriented Development land use designation allows for high intensity, mixed-use development within an easy walk of a transit stop on the Trunk or Feeder Line Network and encourages neighborhood support commercial, office, and public/quasi public land uses with a direct linkage, especially for bicycles and pedestrians, to a Trunk Line Network.

- The Low Density Residential land use designation provides for areas of predominantly single-family housing with some attached housing units. It allows urban densities between one and 12 dwelling units per acre. Allowable land uses include detached single-family homes, duplexes, triplexes, fourplexes, townhouses, lower density condominiums, cluster housing, and mobile home parks.

Goals and policies from the County General Plan related to land use and agricultural resources that apply to the Proposed Action and alternatives under consideration are listed below:

- **LU-26:** Developments in the areas designated on the Land Use Diagram as Urban or Neighborhood [Transit Oriented Developments] shall be designed in a manner that conforms to the concepts of transit-oriented development, including:

  - High intensity, mixed-use development concentrated in a Core Area within an easy walk (one quarter mile) of a transit stop on the Trunk or Feeder Line Network.

  - An emphasis on neighborhood support commercial services at street level in the Core Area that can serve the residents of the Core and Surrounding Secondary Areas, with other employment encouraged in the Urban [Transit Oriented Developments] created along the Trunk Line Network.

  - A pleasant walking environment created through good land use design, short distances, amenities, and streetscape features.

  - Direct, multiple linkages, especially for bicycles and pedestrians, between the Core Area and the surrounding Secondary Area.

- **LU-31:** Assure that regionally-oriented commercial and office uses and employment concentrations have adequate road access, high frequency transit service and an adequate but efficient supply of parking.

- **LU-37:** New industrial uses with high employment densities that do not create significant noise, odor, or other negative impacts, such as office-industrial parks, shall be located with access to transit provided that appropriate measures are undertaken and maintained to mitigate nuisances and traffic.

Sacramento County General Plan Update Sacramento County is in the process of preparing a draft *Sacramento County General Plan Update* (Sacramento County 2010) and EIR to plan for growth in the period 2010–2030. Until that EIR has been certified and the update has been adopted by the Sacramento County Board of Supervisors, the 1993 general plan remains in effect. Following receipt of a third-party review in December 2010, hearings on the general plan began in spring 2011 and are ongoing.

Sacramento County Zoning Code The Sacramento County zoning code has been adopted to protect and promote the public health, safety, and general welfare of the community and to implement the County General Plan goals, policies, and objectives, and to guide the future growth of the County. The zoning code regulates the use of buildings, structures, and land, for agricultural, industrial, businesses, residential, and open space land uses including agriculture, recreation, enjoyment of scenic beauty and use of natural resources, and other purposes.

As of December 2007, the Sacramento County Zoning Code provides for a total of 15 zoning districts: six base districts and nine "special and combining land use zones." The nine special combining land use zones are not used by themselves, but when they are used in combination with other zoning districts, they can provide specific additional uses and/or requirements. In 2008, Sacramento County adopted various updates to its mining-related zoning code (Title II, Article 35, Chapter 3) (Sacramento County 2008b).

As shown in Exhibit 3.9-4, the Proposed Site is located within an unincorporated area of Sacramento County and is zoned under the County General Plan for UR (SM) (Urban Reserve with a Surface Mining combining zone) and Nimbus Road is zoned as O (Recreation). The Sacramento County Zoning Code describes the UR (SM) zoning district as follows:

- The UR (Urban Reserve) zoning district requires a minimum parcel size of 20 gross acres. Allowable land uses within this zoning district include low-density, medium-density, and high-density residential development; commercial and office uses; and public/quasi-public facilities.

- The SM (Surface Mining) combining zone is applied to basic zones in areas that have been identified as valuable mineral resource areas and is intended to protect these resources from preclusive and incompatible land uses. This combining zone is also applied to surface mining areas to protect the environment and the public health, safety, welfare, and property value of residents in the area. Allowable land uses within this combining zone consist of aggregate mining; clay, lignite, and related minerals mining; borrow sites or pits; and mining accessory uses. The SM designation does not preclude the underlying land use designation/zoning upon which it has been overlayed.

- The O (Recreation) zoning district is intended to preserve the open space and other areas of scenic beauty and recreational potential and to protect the scenic and recreational areas within Sacramento County. Allowable land uses within this zoning

district include residential, commercial and business, public/quasi-public, and recreational land uses.

City of Rancho Cordova General Plan The *Rancho Cordova General Plan* (City General Plan) (City of Rancho Cordova 2006) establishes a land use development pattern that consists of a series of walkable neighborhoods, villages, and districts. The city of Rancho Cordova envisions that development would provide a mix of housing, jobs, commercial activities, and services that would be connected through a series of streets and contiguous open space areas. The City General Plan is intended to reinvent the city of Rancho Cordova as a regional destination, providing a full range of retail services and entertainment venues.

The Proposed Site is located within the city of Rancho Cordova planning area, but is outside of the city limits. While the city of Rancho Cordova does not have jurisdiction over lands outside of its boundary, it is the intent to enter into cooperative agreements on land use and circulation planning for these areas (City of Rancho Cordova 2006:5).

The Alternative 1 Site is designated as Office Mixed Use, which is described in the City General Plan as a category that is used predominantly for offices, but encourages the integration of commercial and/or residential use, in conjunction with offices. Hospitals and other public/quasi-public land uses are allowed on sites designated as Office Mixed Use (Exhibit 3.9-5).

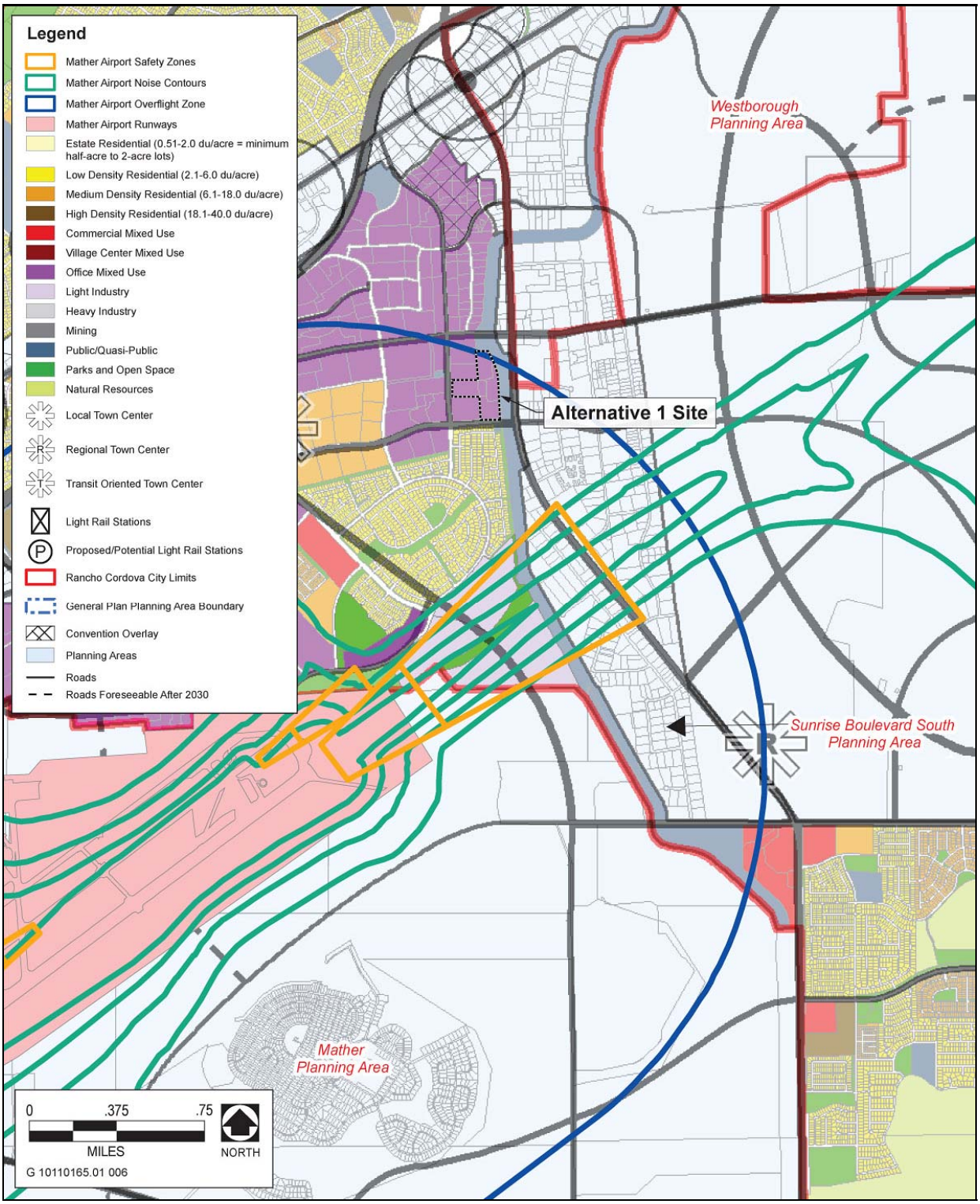
Goals and policies of the City General Plan related to land use and agricultural resources that apply to the Alternative 1 Site and No-Action Alternative are listed below:

Goal LU.1: Achieve a balanced and integrated land use pattern throughout the community

- **Policy LU1.1:** Utilize and maintain the Land Use Map to designate the location and extent of each land use designation within the Planning Area
- **Policy LU1.4:** Promote high quality, efficient, and cohesive land utilization that minimizes negative impacts (e.g., traffic congestion and visual blight) and environmental hazards (e.g., flood, soil instability) on adjacent neighborhoods and infrastructure and preserve existing and future residential neighborhoods from encroachment of incompatible activities and land uses.
- **Policy LU1.6:** Ensure adequate provisions for development of civic uses (public/quasi-public uses)

Goal LU.3: Establish Rancho Cordova as a destination place in the region and a leader in the collective resolution of regional issues

- **Policy LU.3.2:** Ensure that civic structures and uses have outstanding design that creates identity and serves as a catalyst and precedent for subsequent development.



Source: City of Rancho Cordova 2006: adapted by AECOM in 2010

Exhibit 3.9-5: Land Use Designations for the City of Rancho Cordova and Land Use Zones of the Mather Airport Comprehensive Land Use Plan

- **Policy LU.3.4:** Consult with state and federal regulatory and resource agencies during initial review of development projects to identify potential environmental conflicts and establish, if appropriate, concurrent application processing schedules.

- **Policy LU.3.9:** Ensure that land uses adjacent to or near Mather Airport are subject to the location, use, and height restrictions of the most recently adopted CLUP/ALUP [comprehensive land use plan/airport land use plan] at the time of development consideration, except when the CLUP/ALUP is under an update process. In the circumstances of a CLUP/ALUP update, coordinate with the County in the review of development projects to determine the most appropriate development restrictions for the continued operation of the airport.

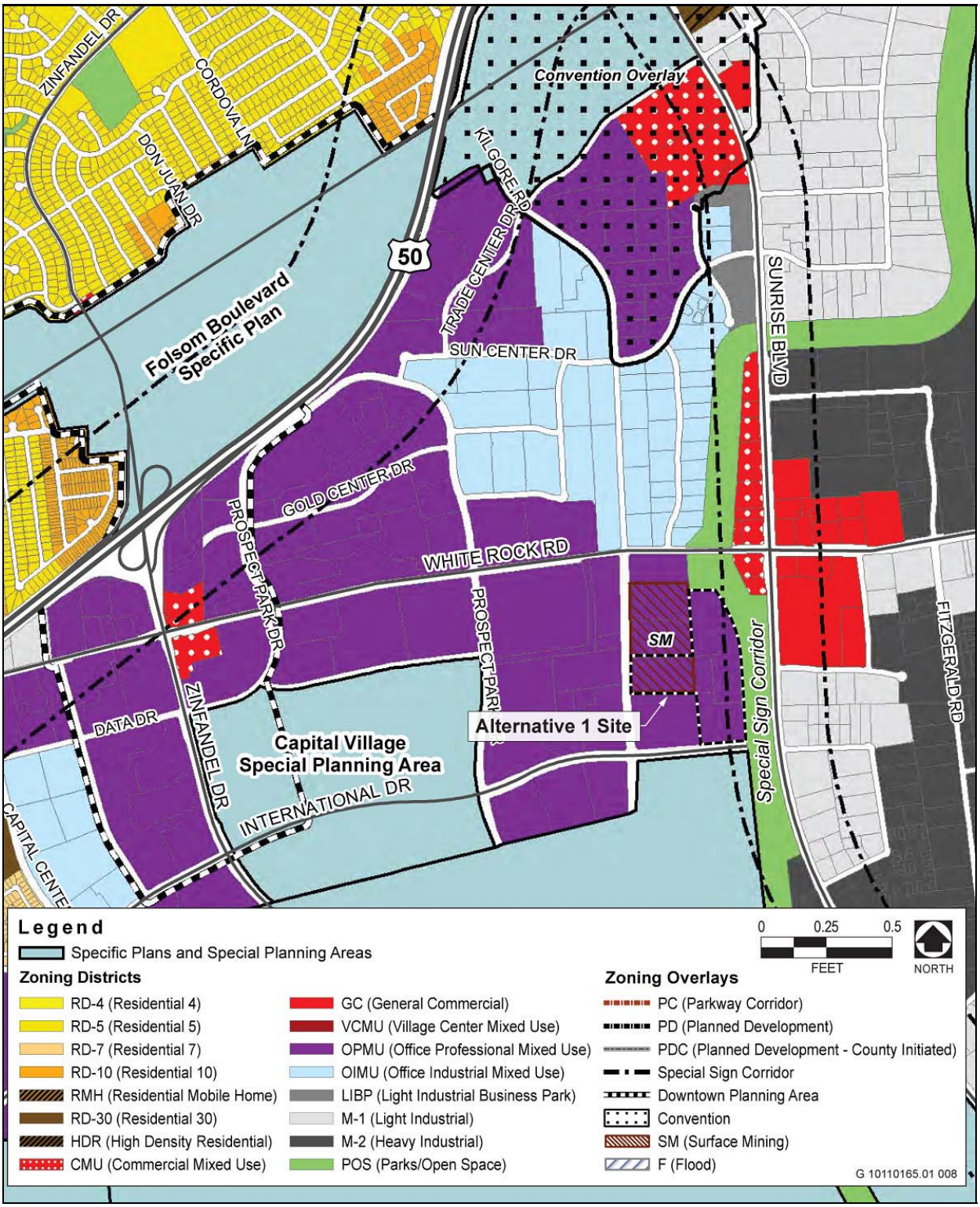
City of Rancho Cordova Zoning Code The current City of Rancho Cordova Zoning Code became effective on February 20, 2009. In general, it is intended to establish a pattern of land uses that would promote the health, safety, and welfare of Rancho Cordova residents, while conserving and protecting natural resources.

The Alternative 1 Site is subject to the City of Rancho Cordova Zoning Code. The site is zoned as OPMU (SM) (Office Professional Mixed Use with a Surface Mining overlay) (Exhibit 3.9-6). The City of Rancho Cordova Zoning Code describes the OPMU (SM) zoning district as follows:

- The OPMU (Office Professional Mixed Use) zoning district is intended to designate property for the development of larger office buildings and business parks within supporting retail and service uses. The predominant use is office space, but commercial uses may be integrated into office buildings or located horizontally in freestanding buildings. The OPMU zoning designation also allows residential uses to be integrated with office use, where compatible, at a density between 10 and 18 units per acre. Public and quasi-public uses are permitted in this employment district by right.

- The SM (Surface Mining) overlay ensures the continued availability of important mineral resources while regulating surface mining operations according to SMARA, to ensure that: adverse environmental effects are prevented or minimized and mined lands are reclaimed to a usable condition which is readily adaptable for alternative land uses; encourage the production and conservation of minerals, while giving consideration to values relating to recreation, watershed, wildlife, range and forage, and aesthetic enjoyment; and eliminate residual hazards to the public health and safety. Compatible land uses under the SM overlay zone include, but are not limited to, very low density residential; geographically extensive but low impact industrial; and recreational, agricultural, silvicultural, grazing, and open space uses. Incompatible land uses may include, but are not limited to, low density residential with high unit value, public facilities, high-density residential, geographically limited but impact-intensive industrial, and commercial.

Proposed South Sacramento County Habitat Conservation Plan The Proposed and Alternative 1 Sites are located within the proposed South Sacramento County Habitat



Source: City of Rancho Cordova Zoning Code; adapted by AECOM in 2010

Exhibit 3.9-6: City of Rancho Cordova Zoning Districts

Conservation Plan (SSCHCP) area. The SSCHCP is intended to provide a regional approach to issues related to urban development habitat conservation, agricultural production, and open space planning. The SSCHCP would provide strategies to conserve habitat for nine special-status plants and 42 special-status wildlife species. If adopted, it would serve as a multispecies, multihabitat conservation plan that addresses the biological impacts of future urban development within the southern portion of Sacramento County—including the cities of Rancho Cordova, Elk Grove, and Galt—and under the jurisdictional boundaries of the Sacramento County Water Agency and Sacramento County Regional Sanitation District.

To reduce impacts, land developers that convert habitat within the urban development area would pay a defined per-acre fee, which would be used to protect, restore, maintain, and monitor habitat. The process for developing the SSCHCP was initiated in 1992. The SSCHCP is currently undergoing environmental review and the best-case estimates for completion and implementation is late 2011 though early 2012 (McCormick, pers. comm., 2010).

American River Parkway Plan The Proposed Site is located adjacent to the American River Parkway (Parkway), upslope and beyond the boundary of the Parkway. The project proponents, acting as good neighbors, would make every feasible effort to adhere to the goals and recommendations of the *Sacramento County American River Parkway Plan 2008* (Parkway Plan) for adjacent land uses.

The Parkway is an open space greenbelt that extends approximately 29 miles from Folsom Dam to the American River's confluence with the Sacramento River. The Parkway Plan provides a guide to land use decisions affecting the parkway, specifically addressing its preservation, use, development, and administration. The purpose of the Parkway Plan is to ensure preservation of the naturalistic environment while providing limited developments to facilitate human enjoyment of the Parkway and to act as the management plan for the National and State Wild and Scenic Rivers Acts. (Sacramento County 2008:1-9.)

Sacramento County adopted the Parkway Plan as an element of its County General Plan, and the County has the principal responsibility for administration and management of the Parkway. The goals of the Parkway Plan are to:

- provide, protect, and enhance for public use a continuous open space greenbelt along the American River extending from the Sacramento River to Folsom Dam;
- provide appropriate access and facilities so that present and future generations can enjoy the amenities and resources of the parkway which enhance the enjoyment of leisure activities;
- preserve, protect, interpret, and improve the natural, archaeological, historical, and recreational resources of the parkway, including an adequate flow of high-quality water, anadromous and resident fishes, migratory and resident wildlife, and diverse natural vegetation;

- mitigate adverse effects of activities and facilities adjacent to the parkway; and
- provide public safety and protection within and adjacent to the parkway.

The Parkway Plan's land use policies regulate uses within the Parkway, including the location and type of activities, as well as facilities and structures associated with those uses. For uses adjacent to the Parkway, the Parkway Plan provides policy guidance for jurisdictions regulating those uses. The purpose of the policy guidance is to ensure that adjacent uses are sensitive to the Parkway's naturalistic setting and scenic values, protect the Parkway from adverse visual impacts, and encourage a positive relationship with adjacent communities.

The Sacramento County Planning and Community Development Department is responsible for the development and monitoring of long-range policies for the Parkway and the County's zoning ordinance provides for development review of properties within or adjacent to the Parkway or those properties that could have an effect on the Parkway. (Sacramento County 2008:216.)

Parkway Area Plans The Parkway has several distinct planning areas, each with unique features and its own adopted area plan. The area plans of the American River Parkway Plan provide a comprehensive description of the individual subunits of the parkway. The area plans contain a description of the current and/or proposed future activities, the location of natural and human-made features, facilities, and opportunities and constraints. Specific policies are used to indicate what facilities, activities, and uses may be permitted or encouraged for a given area (Sacramento County 2008:149).

The Proposed Site is located adjacent to the Upper Sunrise Plan Area. The Upper Sunrise Plan Area totals approximately 397 acres and is located between the Sunrise Boulevard Bridge and Hazel Avenue. In general, it is a narrow strip of land that provides a well-developed woodland canopy and contains several plant species that are unique to this part of the Parkway (Sacramento County 2008:197).

As shown in Exhibit 3.9-1, the Parkway lands adjacent to the Proposed Site are designated as a Protected Area. The Protected Area designation is applied to lands having tracts of naturally occurring vegetation and wildlife that are susceptible to damage by heavy use. Uses in Protected Areas are limited to nature appreciation, trails, recreation, and nonmotorized forms of boat-aquatic recreation. Permitted facilities and improvements include surfaced and unsurfaced trails, water fountains, occasional family unit picnic tables, and restrooms located at trail rest stops (Sacramento County 2008:117-118).

American River Parkway Plan Policies The following policies are applicable to the Proposed Action:

Upper Sunrise Plan Area Policy

- **Policy 10.48:** More intensive development in the Upper Sunrise Area should not be considered due to the unique quality of the vegetation and the cultural resources which should remain fully protected.

Land Use

- **Policy 7.19.1:** Structures shall be located so that neither they, nor activities associated with them, cause damage to Parkway plants or wildlife.

- **Policy 7.19.2:** Structures shall be located so that neither they, nor activities associated with them, impede the recreational use of the Parkway and such structures shall be consistent with the goals and policies of this Plan.

Mather Airport Comprehensive Land Use Plan Mather Airport (formerly Mather AFB) has been open as a public-use air cargo and general aviation airport since May 5, 1995. Managed by the County Department of Airports, the airport consists of two primary runways, one 11,300 feet long and the other 6,100 feet long, generally aligned in a northeast-to-southwest direction. Mather Airport is a joint-use facility, supporting both military and commercial operations, and is rapidly developing as an air cargo depot. The airport includes approximately 40 acres of exclusive air cargo ramp space.

The 2002 *California Airport Land Use Planning Handbook* (Caltrans 2002) is the guiding document for establishing, preparing, and modifying local airport land use compatibility plans (ALUCPs) (formerly known as CLUPs) and their policies and procedures. ALUCP policies are intended to increase the awareness of residents, in any future residential communities that are approved, of their possible exposure to aircraft operations; to limit the potential for conflict between the airport and adjacent communities; and to protect future airport development and aircraft operations. SACOG serves as the Airport Land Use Commission (ALUC) for Sacramento, Sutter, Yolo, and Yuba Counties. The ALUC is responsible for developing and maintaining ALUCPs to protect public health and safety and ensure compatible land uses in the areas around each airport.

The Mather Airport CLUP was adopted in 1997 by SACOG (SACOG 1997). A CLUP provides land use compatibility guidelines and establishes height, noise, and safety boundaries for future land uses near the airport. A CLUP should be consistent with applicable general plans, specific plans, zoning ordinances, and other land use regulations.

The Mather Airport CLUP describes safety compatibility standards for the Airport Area of Influence. The Airport Area of Influence includes:

- height standards as defined by the Federal Aviation Administration in the Federal Aviation Regulation Part 77, *Objects Affecting Navigable Airspace*;

- noise restrictions, as governed by the California Administrative Code, Title 21, Subchapter 6; and

- safety areas as defined by the ALUC.

The Mather Airport CLUP designates three safety areas: the clear zone, the approach-departure zone, and the overflight zone. The clear zone is near the end of the runway and is the most restrictive. The approach-departure zone is located under the takeoff and

landing slopes and is less restrictive. The overflight zone is the area under the traffic pattern and is the least restrictive. The Alternative 1 Site is located within the overflight zone (Exhibit 3.9-5). Allowable land uses within the overflight zone include agricultural, residential, commercial, business, manufacturing, recreational, and public/quasi-public land uses.

In addition, the County is developing the *Mather Airport Master Plan* (MAPA), which was approved by the Sacramento County Board of Supervisors in 1998 and is intended to create additional protection beyond the restrictions described in the ALUCP for Mather Airport. The MAPA will be used to guide airport development in the Mather Airport policy area over the next 20 years, while attempting to resolve related aviation, environmental, and socioeconomic issues existing in the community.

One of the primary issues that the plan will address relates to the exposure of residents in nearby communities to noise generated by aircraft on approach and departure routes from Mather Airport. New noise contours for the MAPA were developed in 2004, and the County Board of Supervisors has adopted these contours for planning purposes only. Noncompatiable land uses within the 60 decibels (dB) community noise equivalent level (CNEL) contour include residential, office, and public uses and residential land uses are prohibited within the 65-dB CNEL contour or higher. See Section 3.10 “Noise” for additional information related to project compatibility with Mather noise contours.

3.9.2 Environmental Consequences and Mitigation Measures

Methods

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines, as amended, and review of the *1993 County of Sacramento General Plan* (1993), *Rancho Cordova General Plan* (2006), and the Mather Airport CLUP. In addition, the DOC Important Farmland maps for Sacramento County were used to evaluate the significance of the lands within the Proposed and Alternative 1 Sites.

Criteria for Determining Significance of Effects

Determinations of significance made in this EIS/EIR are based on the environmental checklist in Appendix G of the State CEQA Guidelines, as amended. These determinations are provided pursuant to CEQA.

The Proposed Action and alternatives under consideration would be considered to have a significant impact related to land use planning, agriculture, and forestland resources if they would:

- physically divide an established community;
- conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect;

- conflict with any applicable habitat conservation plan or natural community conservation plan;
- convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use;
- conflict with existing zoning for agricultural use, or a Williamson Act contract;
- conflict with existing zoning for, or cause rezoning of, forestland (as defined in PRC Section 12220[g]), timberland (as defined in PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104[g]);
- result in the loss of forestland or conversion of forestland to nonforest use; or
- involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to nonagricultural use or conversion of forestland to nonforest use.

Impacts related to conflicts with the SSCHCP are addressed in Section 3.3, "Biological Resources."

Issues Not Discussed Further in This EIS/EIR

Physically Divide an Established Community—The Proposed and Alternative 1 Sites are located on vacant lands that do not contain residential uses. While both the Proposed and Alternative 1 Sites are located adjacent to residential areas, these neighborhoods are clearly defined and would not be divided from other nearby residential areas as a result of project implementation. Therefore, the project would not physically divide an established community. For this reason, this issue is not evaluated further in this EIS/EIR.

Conversion of Important Farmland to Nonagricultural Uses—The Sacramento County Important Farmland map designates the Proposed Site as Other Land and the Alternative 1 Site as Urban and Built-Up Land. These farmland designations are not considered Important Farmland under CEQA (PRC Sections 21060.1 and 21095 and State CEQA Guidelines Appendix G). Therefore, there would be no direct or indirect impacts related to the conversion of Important Farmland or changes which result in the conversion of Important Farmland to nonagricultural uses, and this issue is not evaluated further in this EIS/EIR.

Conflict with Existing Zoning for Agricultural Use or a Williamson Act—None of the land at the Proposed or Alternative 1 Sites is held under Williamson Act contracts; therefore, there would be no impact related to conflicts with existing Williamson Act contracts. For this reason, this issue is not evaluated further in this EIS/EIR.

Conflict with Existing Zoning for, or Cause Rezoning of, Forestland, Timberland, or Timberland Zoned Timberland Production—The Proposed and Alternative 1 Sites are not zoned forestland, timberland, or a Timberland Production Zone; therefore, project

implementation would not result conflict with existing zoning for, or cause rezoning of, forestry. For these reasons, this issue is not evaluated further in this EIS/EIR.

Impact Analysis

Consistency with Applicable Land Use Plans, Policies, and Regulations The land use planning and zoning authority of local jurisdictions in California is set forth in the State's planning laws. As discussed above in Section 3.9.1, "Affected Environment," the Proposed Site is located within an unincorporated portion of Sacramento County and the Alternative 1 Site is located within the city of Rancho Cordova. Planning of these sites is under the jurisdiction of these respective entities and may be appropriately compared to the County and City General Plans to determine the consistency with existing land use designations. In addition, the Sacramento County Planning and Community Development Department is responsible for development and monitoring of long-range policies for the Parkway Plan and administration of land, policy, and development review for properties within or adjacent to the Parkway or those properties that could have an effect on the Parkway. Any inconsistencies between implementation of the project at the Proposed Site and Alternative 1 Site between the County and City's land use designations and zoning code, respectively, is an issue related to land use regulations and not a physical environmental consequence of project implementation. Therefore, any such inconsistency would not be considered a significant impact under CEQA or NEPA, in and of itself. Specific impacts associated with other resource and issue areas are addressed in each technical section of this EIS/EIR as appropriate. These technical sections provide a detailed analysis of other relevant environmental effects resulting from implementation of the project.

Although it is only advisory, the Sacramento Region Blueprint provides policy guidance in the Sacramento region for long-term regional land use and transportation planning that would potentially result in the protection of additional natural resources (because less land would be required for urban uses), less conversion of agricultural land, and reduction in traffic that would improve air quality in the region. The Blueprint does not establish land use restrictions on any jurisdiction and SACOG has no land use authority. SACOG makes clear that the land use designations presented in the Blueprint Preferred Scenario are conceptual and reflect general land use locations in a local area. Therefore, this EIS/EIR does not evaluate consistency with the SACOG Blueprint as an environmental impact.

As explained in "Regulatory Setting—Regional and Local" above, activities at the Proposed Site would not be required to comply with regional or local land use regulations because the property is owned by a Federal agency. Activities at the Alternative 1 Site would take place on private property and would require full compliance with all regional and local regulations.

No-Action Under the No-Action Alternative, no construction activities would occur and operation at the Interim JOC would continue at its present location, which is consistent with land use and zoning designations for the property on which it is located.

Proposed Action As shown in Exhibit 3.9-2, the Blueprint designates the Proposed Site as Open Space (SACOG and Valley Vision 2004). Implementation of the Proposed Action would be inconsistent with the Open Space land use designation. However, the Blueprint is advisory and therefore does not establish land use restrictions on any jurisdiction.

The County General Plan designates the majority of the Proposed Site and Nimbus Road as Urban Transit-Oriented Development (Exhibit 3.9-3). The Urban Transit-Oriented Development land use allows for high intensity, mixed-use development and commercial, office, and public/quasi public land uses with a direct linkage, especially for bicycles and pedestrians, to a Trunk Line Network. The JOC facility and Nimbus Road would be consistent with the office and public/quasi public land uses allowed under this designation.

The western portion of the Proposed Site is designated as Low Density Residential by the County General Plan. This land use designation allows for detached single-family and multifamily homes. A portion of the JOC facility would be located in the area designated as Low Density Residential and the facility would be inconsistent with that land use designation.

The Proposed Site is zoned as UR (SM) (Urban Reserve with a Surface Mining combining zone) by the Sacramento County Zoning Code and Nimbus Road is zoned as O (Recreation) (Exhibit 3.9-4). The UR zoning district allows for low-density, medium-density, and high-density residential development; commercial and office uses; and public/quasi-public facilities. The O zoning district allows for residential, commercial and business, public/quasi-public, and recreational land uses. The UR and O zoning districts are compatible with the Urban Transit-Oriented Development and Low Density Residential land use designations and the JOC facility and Nimbus Road would be allowable land uses consistent with the UR and O zoning districts, respectively.

The Proposed Site is overlaid by the SM combining zone. The SM combining zone is applied to basic zones in areas that have been identified by Sacramento County as valuable mineral resource areas and is intended to protect these resources from preclusive and incompatible land uses. Therefore, the JOC facility would be inconsistent with the SM overlay zone. However, the Proposed Site is Federal property owned by Reclamation. A Federal agency operating on Federal land is not required to comply with regional or local plans, policies, regulations, or ordinances. Reclamation has committed to a “good neighbor” policy and would conform with those regulations to the extent that such compliance would not conflict with or hinder the mission and purposes of the agency or the departments located at the site. To be consistent, the Proposed Site would require rezoning consistent with California Government Code Section 65860 and the Sacramento County General Plan, although this would not be required because of the Federal jurisdiction of the property.

Alternative 1: As shown in Exhibit 3.9-2, the Blueprint designates the Alternative 1 Site as Single Family Large Lot and Industrial (SACOG and Valley Vision 2004). Implementation of Alternative 1 would be inconsistent with the Single Family Large Lot

and Industrial land use designation. However, the Sacramento Region Blueprint is advisory and therefore does not establish land use restrictions on any jurisdiction.

The *Rancho Cordova General Plan* designates the Alternative 1 Site as Office Mixed Use land uses (Exhibit 3.9-5). The Office Mixed Use land use designation is used predominantly for offices, but encourages the integration of commercial and/or residential use in conjunction with offices. Hospitals and other public/quasi-public land uses are allowed on sites designated as Office Mixed Use. Therefore, Alternative 1 is consistent with the Office Mixed Use land use designation.

The Alternative 1 Site is zoned by the City of Rancho Cordova Zoning Code as OPMU (SM) (Office Professional Mixed Use with a Surface Mining overlay) (Exhibit 3.9-6). The OPMU zoning district is intended to designate property for the development of larger office buildings and business parks within supporting retail and service uses. The predominant use is office space, but commercial uses may be integrated into office buildings or located horizontally in freestanding buildings. The OPMU zoning district is compatible with the Office Mixed Use land use designation and the JOC facility would be an allowable land use consistent with the OPMU zoning district.

The Alternative 1 Site is overlaid by an SM zoning district, which is inconsistent with the underlying OPMU zoning. The SM overlay ensures the continued availability of important mineral resources while regulating surface mining operations according to SMARA, to ensure that adverse environmental effects are prevented or minimized, encourages the production and conservation of minerals, and eliminates residual hazards to the public health and safety. Compatible land uses under the SM overlay zone include, but are not limited to, very low density residential; geographically extensive but low impact industrial; and recreational, silvicultural, agricultural, grazing, and open space uses. Therefore, the JOC facility would be inconsistent with the SM overlay zone at the Alternative 1 Site.

Impact 3.9-1: Conflict with the Mather Airport Comprehensive Land Use Plan

No-Action

Under the No-Action Alternative, no construction activities would occur and operation at the Interim JOC would continue; therefore, the project would not conflict with the Mather Airport CLUP or ALUCP. **No direct** or **indirect impacts** would occur.

Proposed Action

The Proposed Site is not within the Mather Airport CLUP or ALUCP. Thus, the Proposed Action would not conflict with the Mather Airport CLUP or ALUCP. **No direct** or **indirect impacts** would occur.

Alternative 1

The State Aeronautics Act requires each county to establish an Airport Land Use Commission to regulate land use around airports, to protect public safety, and to ensure that land uses near airports do not interfere with aviation operations. The

Mather Airport CLUP establishes planning boundaries for the airport and defines compatibility guidelines for height, noise, and safety and patterns of future land use. The Mather Airport CLUP designates three safety areas: the clear zone, the approach-departure zone, and the overflight zone. The Alternative 1 Site is located within the overflight zone (Exhibit 3.9-5). The overflight zone is the area under the traffic pattern and is the least restrictive and generally coincides with the area aircraft fly over during normal traffic pattern procedures. Business and office uses are allowable land uses within the overflight zone; therefore, the JOC facility would not conflict with the Mather Airport CLUP.

The Alternative 1 Site would be located outside the adopted Mather Airport noise contours (see Exhibit 3.10-2 in Section 3.10, "Noise"). Portions of the Alternative 1 Site would be located inside the MAPA; however, the Alternative 1 Site is not located in the MAPA 60-dB CNEL noise contour.

Because business and office land uses are an allowable use within the overflight zone and because the Alternative 1 Site is outside of the 60-dB CNEL noise contour, Alternative 1 is compatible with the Mather Airport CLUP and this impact would be **direct** and **less than significant**. **No indirect impacts** would occur.

Mitigation Measure: No mitigation is required.

Impact 3.9-2: Conversion of Forestland to Nonforest Uses

No-Action
Under the No-Action Alternative, no construction activities would occur and operation at the Interim JOC would continue; therefore, the project would not result in the loss of forestland or convert forestland to nonforest uses. No **direct** or **indirect impacts** would occur.

Proposed Action
Forestland is defined in PRC section 12220(g) as land that can support 10% native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. The 25.5-acre Proposed Site contains approximately 6.2 acres (approximately 24%) of oak woodlands, mainly on the southeast portion of the site. The site is near but not contiguous with wooded areas along the American River and the American River Parkway. The area provides cover, foraging, nesting, and roosting habitat for a variety of wildlife species, including special-status species such as Swainson's hawk and white-tailed kite (see Section 3.3, "Biological Resources," for further discussion). The woodland habitat also provides movement corridors for these and many other species. In addition, the oak woodland at the site contributes to natural views and the visual character of the surrounding area (see Section 3.1, "Aesthetics," for further discussion).

Implementing the Proposed Action could result in the loss of oak woodland on the Proposed Site. Although the exact number and sizes of oak trees being removed has not yet been determined, it is estimated that approximately 1 acre of oak woodland (1.01 acres with the campus-style option or 0.99 acre with the office-style option) could be removed during construction of the buildings and parking lots. Approximately 5.2 acres of the existing oak woodland would remain on the Proposed Site, and Mitigation Measure 3.3-2 identified in Section 3.3 ("Perform Tree Surveys and Avoid or Replace Native Oak Trees and Nonnative Trees on the Proposed Site") would require protecting and avoiding oak trees, replacing damaged oak trees, or contributing to the Sacramento County Tree Preservation Fund. Creation and implementation of the landscaping plan, as described in Chapter 2.0, "Alternatives," would protect forestland resource values at the site. Thus, with implementation of the Proposed Action, the site would retain approximately 20% native tree cover and would retain biological and open space values as a discontiguous but coherent area of oak woodland. This **direct** impact would be **less than significant**. **Indirect impacts** associated with loss of forestland are discussed in Section 3.1, "Aesthetics," and Section 3.3, "Biological Resources."

Alternative 1
No native tree cover that would qualify as forestland is present on the Alternative 1 Site. Thus, Alternative 1 would not result in the loss of forestland or convert forestland to nonforest uses. **No direct** or **indirect impacts** would occur**.**

Mitigation Measure: No mitigation is required.

Residual Significant Impacts

Implementation of the Proposed Action would not conflict with the Mather Airport CLUP. Impacts associated with the loss of forestland under the Proposed Action would be reduced to less than significant by protecting and avoiding oak trees, replacing damaged oak trees, or contributing to the Sacramento County Tree Preservation Fund. The Alternative 1 Site is not within the Mather Airport CLUP boundaries and does not have forestland resources. Therefore, no residual significant impacts would occur related to land use and planning, agriculture, and forestland resources.

3.9.3 Cumulative Impacts

The determination of significance for impacts related to these issues, as described by Appendix G of the State CEQA Guidelines, as amended, is whether a project would conflict with any applicable land use plan or policy adopted for the purpose of avoiding or mitigating environmental impacts. Any land use inconsistencies of future projects, by themselves, are not considered a significant cumulative effect because issues involving consistency of adopted land use plans or policies and zoning generally do not constitute physical impacts on the environment. However, implementation of those plans and policies adopted for the purpose of avoiding or mitigating environmental impacts could lead to physical environmental impacts, which are considered in the appropriate sections of this EIS/EIR. The project's ultimate consistency with adopted local land use plans,

policies, and zoning is provided for through a requested amendment to the city of Rancho Cordova or Sacramento County, as appropriate. Because these requested amendments would not result in any physical environmental impacts and because land use impacts would occur on a project-specific basis rather than a cumulative basis, the project would not cause a cumulatively considerable incremental contribution to a significant cumulative impact related to consistency with general plan policies or land use designations for the Proposed Action or Alternative 1.

Past development in the city of Rancho Cordova and the surrounding unincorporated region of Sacramento County has resulted in the conversion of large amounts of land to agricultural production. The more recent expansion of urban and commercial development has further altered the original land forms. The Sacramento County Important Farmland map designates the Proposed Site as Other Land and the Alternative 1 Site and Urban and Built-Up Land. These farmland designations are not considered Important Farmland under CEQA (PRC Sections 21060.1 and 21095 and State CEQA Guidelines Appendix G). Some of the related projects are located on land that is designated as Important Farmland; therefore, the related projects themselves could result in significant impacts. However, because the Proposed Site and the Alternative 1 Site are not located on Important Farmland, the project would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to conversion of Important Farmland to nonagricultural uses.

The geographic scope for analyzing the cumulative effects on forestland includes the Sacramento Valley. As discussed above, the Alternative 1 Site does not contain forest land, but the Proposed Site contains approximately 6.2 acres (approximately 24%) of oak woodland coverage. Implementation of the Proposed Action could result in the loss of oak woodland on the Proposed Site. Although the exact number and sizes of oak trees being removed has not yet been accurately determined, it is estimated that approximately 1 acre of oak woodland could be removed during construction of the buildings and parking lots. Mitigation required as part of this project would reduce that impact to a less-than-significant level by avoiding or replacing oaks on-site where feasible; approximately 20% of the native tree cover would be retained before replacement. Conversion of forest resources to nonforest uses has occurred in the project region as a result of habitat conversions, residential and commercial uses, and other compounding factors, such as lack of regeneration, spread of Sudden Oak Death syndrome, and pressures from invasive species. Thus, there is an existing significant cumulative impact associated with loss of forestland. However, for the reasons stated above, the removal of forestland associated with the Proposed Site would not result in a cumulatively considerable incremental contribution to this significant cumulative impact. Because Alternative 1 does not contain forestland, implementation of Alternative 1 would also not result in a cumulatively considerable incremental contribution to this significant cumulative impact.

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3.10 Noise

3.10.1 Affected Environment

Environmental Setting

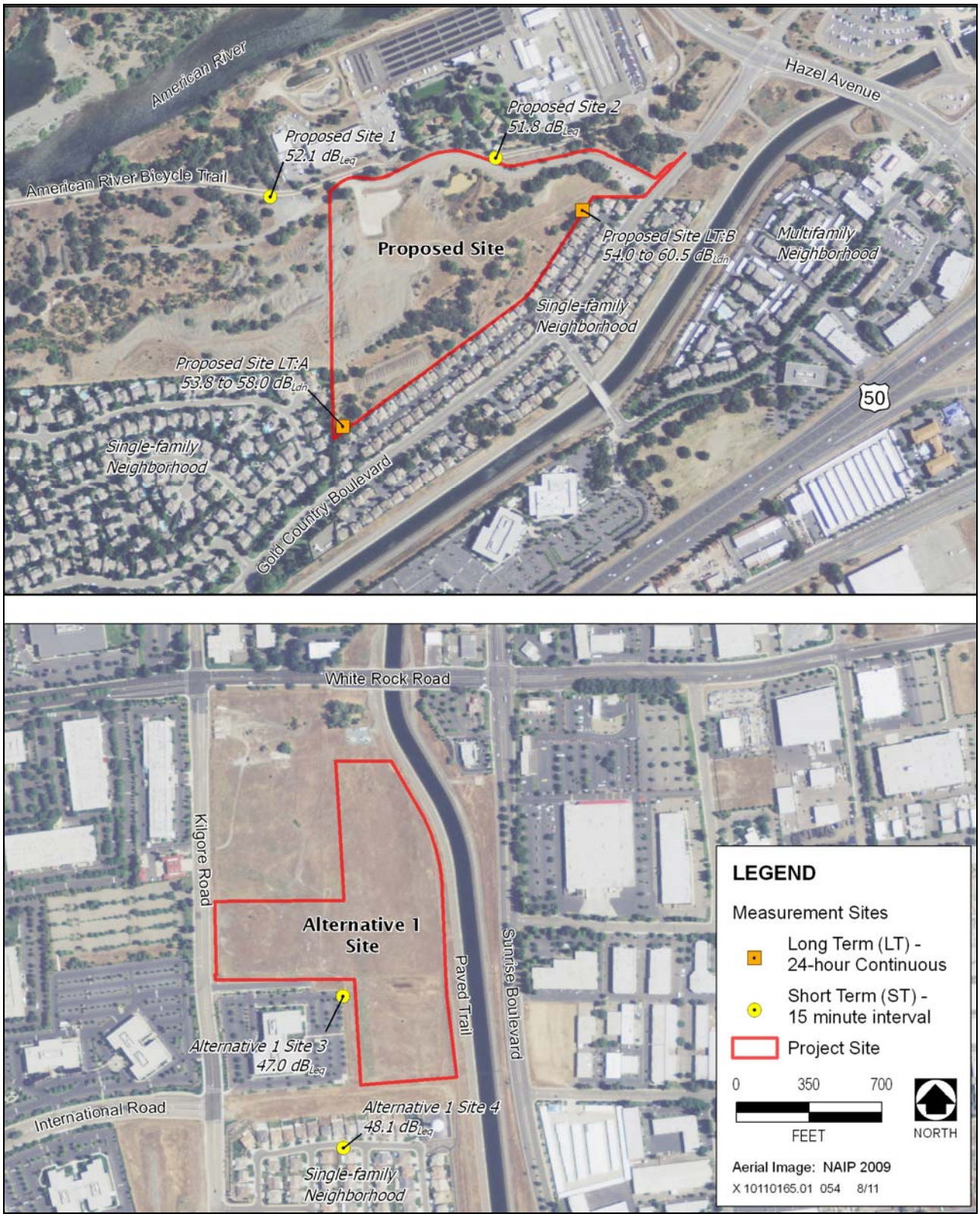
Details on how sound is measured, the human response to noise, how sound propagates, fundamental noise control options, and vibration are described below.

Existing Noise- and Vibration-Sensitive Receptors Sensitive land uses generally include those uses where exposure to noise and vibration would result in adverse effects and uses where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both noise levels (interior and exterior) and vibration levels. Other sensitive land uses include schools, hospitals, convalescent facilities, parks, hotels, places of worship, cemeteries, libraries, and other uses where low noise and vibration levels are essential.

Land uses near the Proposed Site include residential neighborhoods, recreation, business parks, and open space. Nearby sensitive receptors include single-family residential dwellings located along the southern boundary of the project site and multifamily residential dwellings located across the Folsom South Canal approximately 800 feet to the southeast. Other sensitive receptors include recreation users on the American River Parkway Trail located along the northern boundary of the project site.

Land uses near the Alternative 1 Site include residential neighborhoods, recreation, business parks, commercial, and open space. Nearby sensitive receptors include single-family residential dwellings located south of the project site on International Drive. Other sensitive receptors include recreation users on a paved trail located along the Folsom South Canal on the eastern boundary of the project site. Exhibit 3.10-1 shows the general locations of existing sensitive receptors at each project site.

Existing Noise and Vibration Sources Existing noise sources near the Proposed Site are influenced by surface transportation noise emanating from roadway vehicle traffic on Hazel Avenue and Gold County Boulevard. Noise from business parks south of the project site, in addition to noise from outdoor activities (e.g., people talking, dogs barking, operation of landscaping equipment) also contribute, to a lesser extent, to the existing noise environment. Exhibit 3.10-1 shows the general locations of existing land uses and their respective location with respect to noise sources (e.g., Gold Country Boulevard, Hazel Avenue).



Sources: Sacramento County 2009, SACOG 1997, data compiled by AECOM in 2010

Exhibit 3.10-1: Noise Sources and Measurements at the Proposed Site and the Alternative 1 Site

Existing noise sources near the Alternative 1 Site are influenced by surface transportation noise emanating from roadway vehicle traffic on Sunrise Boulevard and Kilgore Road. Noise from business parks west of the project site, in addition to noise from outdoor activities (e.g., people talking, dogs barking, operation of landscaping equipment) also contribute, to a lesser extent, to the existing noise environment. Exhibit 3.10-1 shows the general locations of existing land uses and their respective locations with respect to noise sources (i.e., Sunrise Boulevard, Kilgore Road). Aircraft overflights from Mather Airport also contribute to existing noise levels at the Alternative 1 Site, but to a lesser extent.

Ambient Noise Surveys Community noise surveys were conducted at both sites between December 13 and 16, 2010, to document the existing noise environment at noise-sensitive receptors and existing noise sources. In accordance with professional standards and to be consistent with policies of the Sacramento County and City of Rancho Cordova Noise Ordinances, noise-sensitive receptors were defined as residential land uses, places of worship, theaters, and schools. The noise surveys indicated that the dominant noise source identified during the ambient noise survey at both sites was traffic from the nearby roadways. Ambient noise levels at the Proposed Site are influenced by traffic on major roads such as Hazel Boulevard, and Gold Country Boulevard; at the Alternative 1 Site, the primary influence is traffic on major roads such as Sunrise Boulevard and White Rock Road.

Continuous 24-hour, long-term monitoring of noise levels was conducted at two locations at the Proposed Site. Short-term noise measurements of noise levels were conducted at two locations for each site. No long-term measurements were taken at the Alternative 1 Site because no significant receptors sensitive to noise are considered to be close to the project area.

Community noise survey locations are shown in Exhibit 3.10-1. The energy-equivalent noise level (L_{eq}), maximum noise level (L_{max}), and noise level exceeded 10%, 50%, and 90% of a period of time (L_{10}, L_{50}, and L_{90}) were taken at each short-term ambient noise measurement location presented in Appendix C5, “Noise Monitoring and Modeling Results.” During the survey, average daytime ambient noise levels were 52.1 A-weighted decibels (dBA) and 51.8 dBA L_{eq} at the Proposed Site and 47.0 dBA and 48.1 dBA L_{eq} at the Alternative 1 Site. Maximum noise levels were 71.8 dBA and 71.4 dBA L_{max} at the Proposed Site and 53.1 dBA and 67.1 dBA L_{max} at the Alternative 1 Site. Maximum noise levels were attributable to vehicle drive-bys.

The day-night average noise level (L_{dn}), L_{eq}, L_{max}, L_{50}, and L_{90} values were taken at each long-term ambient noise measurement location presented in Appendix C5, “Noise Monitoring and Modeling Results.” During the survey, 24-hour ambient noise levels ranged from 53.8 dB to 58.0 dB L_{dn} at the Proposed Site and 54.0 dB to 60.5 dB L_{dn} at the Alternative 1 Site. Maximum noise levels ranged from 69.8 dB L_{max} at the Proposed Site to 65.2 dB L_{max} at the Alternative 1 Site.

Roadway Vehicle Traffic
As described above, traffic noise is the dominant noise source at both sites and is influenced by major roads such as Hazel Boulevard and Gold Country Boulevard at the Proposed Site and Sunrise Boulevard and White Rock Road at the Alternative 1 Site.

Appendix C5, "Noise Monitoring and Modeling Results," presents the modeled traffic noise levels, noise levels at 100 feet from the centerline of each major roadway near both sites, and distances from the roadway centerlines to the 60 dB, 65 dB, and 70 dB L_{dn} traffic noise contours. These traffic noise modeling results are based on existing average daily traffic (ADT) volumes. The location of the 65 dB L_{dn} contour ranges from 7 feet to 266 feet from the centerline of the modeled roadways. The extent to which existing land uses at the two sites are affected by existing traffic noise depends on their respective proximity to the roadways and their individual sensitivity to noise.

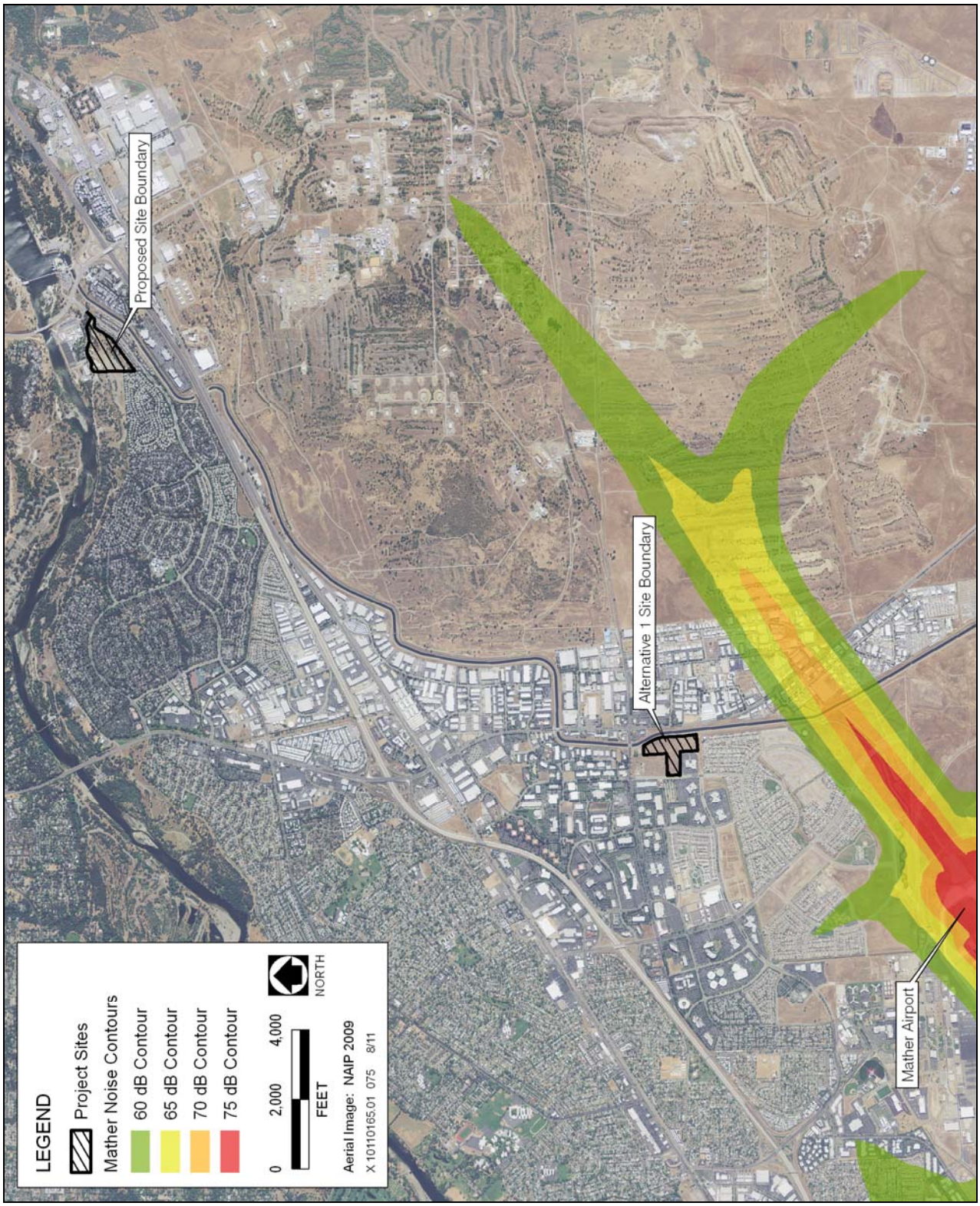
Mather Airport Mather Airport (formerly Mather Air Force Base) has been open as a public-use air cargo and general-aviation airport since May 5, 1995. Managed by the Sacramento County Airport System, the airport, which operates 24 hours per day, 7 days per week, consists of two primary runways: one is 11,300 feet long and the other is 6,100 feet long. The runways are generally aligned northeast to southwest. Mather Airport is a joint-use facility that supports both military and commercial operations, and it is rapidly developing as an air cargo depot. The airport includes approximately 40 acres of exclusive air cargo apron space.

Following the closure of Mather Air Force Base in 1988, Sacramento County adopted a reuse plan for Mather Airport in fall 1991. The airport land use compatibility plan (ALUCP) for Mather Airport was subsequently adopted in May 1997. As depicted in Exhibit 3.10-2, neither of the project sites is located within the currently adopted 60- and 65-dBA community noise equivalent level (CNEL) noise contours of the ALUCP for Mather Airport. These noise contours, however, have been proposed for revision as part of the development of the Mather Airport Master Plan, which is currently being prepared by the Sacramento County Airport System. The revised noise contours have been proposed to account for existing and projected changes in aircraft operations that have occurred since development of the ALUCP for Mather Airport. According to the Mather Airport Master Plan, neither the Proposed Site nor the Alternative 1 Site is located within the proposed 60- and 65-dBA CNEL noise contours of the future Mather Airport operations (Sacramento County, Department of Airports:5-14, 5-15).

Regulatory Setting

Federal Plans, Policies, Regulations, and Laws The following Federal laws related to noise are relevant to the project and are described in detail in Section 5.2, "Compliance with Related Laws, Rules, Regulations, and Executive Orders":

- Federal Noise Control Act of 1972.



Source: Data compiled by AECOM in 2010

Exhibit 3.10-2: Mather Noise Contours (1997)

State Plans, Policies, Regulations, and Laws

California Building Standards Code Title 24 of the California Code of Regulations, also known as the California Building Standards Code, establishes building standards applicable to all occupancies throughout California. The code provides acoustical regulations for both exterior-to-interior sound insulation and sound and impact isolation between adjacent spaces of various occupied units. Title 24 regulations state that interior noise levels generated by exterior noise sources shall not exceed 45 dB L_{dn}, with windows closed, in any habitable room for general residential uses.

Regional and Local Plans, Policies, Regulations, and Ordinances The JOC Relocation Project is jointly proposed by Reclamation, a Federal agency, and DWR, a State agency. The Proposed Site is Federal property owned by Reclamation. A Federal agency operating on Federal land is not required to comply with regional or local plans, policies, regulations, or ordinances. However, a Federal agency normally will conform with local regulations and State laws that do not interfere with the agency's ability to "carry out the purposes of the government," such as building, health, and safety codes (Fort Leavenworth R.R. v. Lowe, 114 U.S. 525 [1885]).

Activities at the Proposed Site would not be required to comply with regional or local regulations, but Reclamation has committed to a "good neighbor" policy and would conform with those regulations to the extent that such compliance would not conflict with or hinder the mission and purposes of the agency or the departments located at the site. Activities at the Alternative 1 Site would take place on private property and would require full compliance with all regional and local regulations.

Sacramento County General Plan The Noise Element of the 1993 County of Sacramento General Plan (Sacramento County 1993) identifies noise criteria for various stationary and transportation noise sources. The purpose of the Noise Element is to protect the residents of the county from exposure to excessive noise. The policies related to noise that apply to the Proposed Action and the alternatives under consideration are listed below:

- **Policy NO-1:** Noise created by new transportation noise sources should be mitigated so as not to exceed 60 dB L_{dn}/CNEL at the outdoor activity areas of any affected residential lands or land use situated in the unincorporated areas. When a practical application of the best available noise-reduction technology cannot achieve the 60 dB L_{dn} CNEL standard, then an exterior noise level of 65 dB L_{dn} CNEL may be allowed in outdoor activity areas.

- **Policy NO-2:** Noise created by new non-transportation noise sources shall be mitigated so as not to exceed any of the noise level standards of Table II-1 [see Table 3.10-1], as measured immediately within the property line of any affected residentially designated lands or residential land use situated in the unincorporated areas.

Table 3.10-1
County of Sacramento Noise Level Performance Standards[1] for Residential Areas Affected by Nontransportation Noise[2]

Statistical Noise Level Descriptor	Exterior Noise Level Standards (dB)	
	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
L_{50}	50	45
L_{max}	70	65

[1] These standards are for planning purposes and may vary from the standards of the County's Noise Control Standards, which are for enforcement purposes.
[2] These standards apply to new or existing residential areas affected by new or existing nontransportation sources.
Notes: dB = A-weighted decibels; L_{50} = noise level exceeded 50% of a specified period of time; L_{max} = maximum noise level.
Source: Sacramento County 1993:Table II-1.

- **Policy NO-3:** Where proposed non-transportation noise sources are likely to produce noise levels exceeding the performance standards of Table II-1 [see Table 3.10-1 above] at existing or planned residential uses, an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design. (Requirements for the content of an acoustical analysis are given by Table II-2 [see Table 3.10-2].)

Table 3.10-2
Requirements for an Acoustical Analysis

An acoustical analysis prepared pursuant to the Noise Element shall:

A. Be the financial responsibility of the applicant.
B. Be prepared by a qualified person experienced in the fields of environmental noise assessment and architectural acoustics.
C. Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions and the predominant noise sources.
D. Estimate existing and projected cumulative (20 years) noise in terms of L_{dn}/CNEL and/or standards of [Table 3.10-1], and compare those levels to the adopted policies of the Noise Element.
E. Recommend appropriate mitigation to achieve compliance with the adopted policies and standards of the Noise Element. Where the noise source in question consists of intermittent single events, the report must address the effects of maximum nose levels in sleeping rooms in terms of possible sleep disturbance.
F. Estimate noise exposure after the prescribed mitigation measures have been implemented.
G. Describe a post-project assessment program which could be used to evaluate the effectiveness of the proposed mitigation measures.

Source: Sacramento County 1993:Table II-2.

- **Policy NO-6:** The compatibility of proposed nonresidential projects with existing and future noise levels due to transportation noise sources shall be evaluated through a comparison to Figure II-1, "Land Use Compatibility for Community Noise Environments" and Table II-3, "Acceptable Noise Levels in Unoccupied Rooms" [Tables 3.10-3 and 3.10-4, respectively].

Table 3.10-3
Land Use Compatibility for Community Noise Environments

Land Use Category	Community Noise Exposure L_{dn} or CNEL, dB						
	55	60	65	70	75	80	
Residential							
Agricultural-Residential 5 and 10 acres							
Transient Lodging—Hotels, Motels							
Schools, Libraries, Churches, Hospitals, Nursing Homes							
Auditoriums, Concert Halls, Amphitheatres, Sports Arenas							
Playgrounds, Neighborhood Parks							
Golf Courses, Riding Stables, Water Recreation, Cemeteries							
Office Buildings, Business Commercial and Professional							
Industrial, Manufacturing, Utilities, Agricultural							

Acceptable—Specified land use is satisfactory, no noise mitigation measures are required.

Conditionally Acceptable—Use should be permitted only after careful study and inclusion of protective measures as needed for intended use and to satisfy policies of the Noise Element.

Unacceptable—Development is not feasible in accordance with Noise Element. Use is prohibited.

Notes: dB = A-weighted decibels; L_{dn} = day-night average noise level; CNEL = Community Noise Equivalent Level.
Source: Sacramento County 1993: Figure II-1

Table 3.10-4
Acceptable Noise Levels in Unoccupied Rooms Affected by Transportation Noise

Location	Average[1] Sound Level (dBA)	Average[1] Sound Level Location	(dBA)
Radio studios, recording studios	25–30	Music rooms	30–35
Concert halls, large auditoriums	30–35	Theaters (speech)	30–35
Motion picture theaters	40–45	Churches	35–40
Conference rooms, small offices	40–45	Classrooms	35–45
Public offices (large), banks, stores	45–50	Hospitals	40–45
Restaurants, cafeterias	45–55	Court rooms	45–45
Libraries	40–45		

Notes: dBA=A-weighted decibels.
[1] L_{eq} in worst-case hour during periods of use.
Source: Sacramento County 1993:Table II-3

Sacramento County General Plan Update Sacramento County is in the process of preparing a draft Sacramento County General Plan Update (Sacramento County 2010) and EIR to plan for growth in the period 2010–2030. Until that EIR has been certified and the update has been adopted by the Sacramento County Board of Supervisors, the 1993 general plan remains in effect. Following receipt of a third-party review in December 2010, hearings on the general plan began in spring 2011 and are ongoing.

Sacramento County Municipal Code Section 6.68 of the Sacramento County Municipal Code identifies regulations related to noise and applicable to the proposed project.

City of Rancho Cordova General Plan The Noise Element of the *Rancho Cordova General Plan* (City of Rancho Cordova 2006) identifies noise criteria for various stationary and transportation noise sources. Policies of the general plan related to noise that apply to the Proposed Action and the alternatives under consideration are listed below:

- **Policy N.1.2:** Ensure that the indoor and outdoor areas of new projects will be located, constructed, and/or shielded from noise sources in compliance with the City's noise standards to the maximum extent feasible.
- **Policy N.1.3:** Ensure that proposed non-residential land uses likely to exceed the City's standards do not create noise disturbances in existing noise-sensitive areas.
- **Policy N.1.4:** Mitigate noise created by proposed non-transportation noise sources to comply with the City's noise standards to the maximum extent feasible.
- **Policy N.1.5:** Mitigate noise created by the construction of new transportation noise sources (such as new roadways or new light rail service) to the maximum extent feasible to comply with the City's standards.

- **Policy N.1.6:** Ensure that comfortable noise levels and adequate privacy are maintained in higher density development.
- **Policy N.1.7:** To the extent feasible and appropriate, the City shall require the use of temporary construction noise control measures for public and private projects that may include the use of temporary noise barriers, temporary relocation of noise-sensitive land uses or other appropriate measures.

Performance standards for stationary noise sources and maximum allowable noise exposure from transportation noise sources, as specified in the Noise Element of the *Rancho Cordova General Plan*, are included below as Tables 3.10-5 and 3.10-6 because these standards are used for determining project compliance.

Table 3.10-5
Performance Standards for Stationary Noise Sources—
Noise Element of the City of Rancho Cordova General Plan

Stationary Noise Source	Noise Level Descriptor	Daytime (7 a.m.–10 p.m.)	Nighttime (10 p.m.–7 a.m.)
Typical	Hourly L_{eq}, dB	55	45
Tonal, Impulsive, Repetitive, or Consist Primarily of Speech or Music	Hourly L_{eq}, dB	50	40

Note: dB = decibels; L_{eq} = energy-equivalent noise level
Source: City of Rancho Cordova 2006:Table N-1

City of Rancho Cordova Noise Ordinance The City Noise Ordinance establishes maximum allowable exterior and interior noise levels for affected land uses. The standards from the City Noise Ordinance are summarized in Table 3.10-7. The ordinance generally limits exterior noise levels (measured at residential land and agricultural land uses) to a maximum of 55 dBA during any cumulative 30-minute period during the daytime hours (7 a.m.–10 p.m.), and 50 dBA during any cumulative 30-minute period during the nighttime hours (10 p.m.–7 a.m.). The ordinance sets somewhat higher noise limits for noise of shorter duration; however, noise must not exceed 75 dBA during the day and 70 dBA at night. Activities generally considered to be exempt from the noise standards include construction activities (provided that they occur between the daytime hours of 7 a.m.–6 p.m., Monday through Saturday, and 9 a.m.–6 p.m. on Sunday), school athletic and entertainment events, and activities conducted on public parks and playgrounds (Section 6.68.090[C]). In addition, operation of any mechanical device, apparatus or equipment related to or connected with emergency activities or emergency work (e.g., operation of emergency electrical generator) is exempt from the noise standards (Section 6.68.090[D]).

Table 3.10-6
Maximum Allowable Noise Exposure, Transportation Noise Sources—Noise Element of the City of Rancho Cordova General Plan

Land Use	Outdoor Activity Areas[1] L_{dn}/CNEL, dB	Interior Spaces	
		L_{dn}/CNEL, dB	L_{eq}, dB[2]
Residential	60[3]	45	–
Residential subject to noise from railroad tracks, aircraft overflights, or similar noise sources that produce clearly identifiable, discrete noise events (the passing of a single train, as opposed to relatively steady noise sources such as roadways)	60[3]	40[5]	–
Transient Lodging	60[4]	45	–
Hospitals, Nursing Homes	60[3]	45	–
Theaters, Auditoriums, Music Halls	–	–	35
Churches, Meeting Halls	60[3]	–	40
Office Buildings	–	–	45
Schools, Libraries, Museums	–	–	45
Playgrounds, Neighborhood Parks	70	–	–

Note: CNEL = community equivalent noise level; dB = decibels; L_{dn}= day-night average noise level; L_{eq} = energy-equivalent noise level

[1] Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land use. Where it is not practical to mitigate exterior noise levels at patio or balconies of apartment complexes, a common area such as a pool or recreation area may be designated as the outdoor activity area.

[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 the 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.

[4] In the case of hotel/motel facilities or other transient lodging, outdoor activity areas such as pool areas may not be included in the project design. In these cases, only the interior noise level criterion will apply.

[5] The intent of this noise standard is to provide increased protection against sleep disturbance for residences located near railroad tracks.

Source: City of Rancho Cordova 2006:Table N-2

Table 3.10-7
City of Rancho Cordova Noise Control Ordinance Standards

Land Use	Period of Measurement	Maximum Acceptable Noise Standards	
		Exterior Noise Standards[1]	Interior Noise Standards
Residential, School, Church, Hospital, Agricultural Land Uses	7 a.m.–10 p.m.	55 dBA[2]	-
	10 p.m.–7 a.m.	50 dBA[2]	-
Apartment, Condominium, Townhouse, Duplex, or Multidwelling Unit	10 p.m.–7 a.m.[3] 5 minutes/hour: 15 minutes/hour: Any period of time:	–	45 dBA 50 dBA 55 dBA

Note: dBA = A-weighted decibels

[1] The following noise standards, unless otherwise specifically indicated in the City of Rancho Cordova Municipal Code, shall apply to all properties within a designated noise area.

[2] Cumulative duration of intrusive sound: It is unlawful for any person within the city to create any noise that causes the noise level on the affected property, when measured in the designated noise area, to exceed for the duration of time set forth following, the specified exterior noise standards in any one hour by (noise limits shall be reduced by 5 dBA for impulsive or simple tone noise, or noise consisting of speech or music):

A. 30 minutes: +0 dBA
B. 15 minutes: +5 dBA
C. 5 minutes: +10 dBA
D. 1 minute: +15 dBA
E. Level not to be exceeded for any time: +20 dBA

In addition to the above standards, interfering noise at schools, churches, or hospitals, while the same is in use, that is 10 dBA or greater than the ambient noise level at the building, shall be deemed excessive and unlawful. Residential-use HVAC [heating, ventilation, and air conditioning] system equipment, such as pumps, fans, air conditioners, and cooling towers, shall not exceed 60 dBA at any point at least 1 foot inside the property line of the affected residential or agricultural property line, or 55 dBA when measured in the center of a neighboring patio or at the exterior window of the affected residential unit.

[3] Based on cumulative periods of time during any one hour. Interior noise levels, when measured in the neighboring unit, shall not exceed the specified standards for the corresponding cumulative period of time during any hour.

Source: City of Rancho Cordova Municipal Code, Noise Control Ordinance

Sacramento County American River Parkway Plan The *Sacramento County American River Parkway Plan 2008* (Parkway Plan) establishes exterior noise standards that were adopted from the Sacramento County Code, Noise Control Ordinance, Sections 6.68.070 and 6.68.150, as discussed above. The standards set noise limits for residential land uses and agricultural uses; however, the standards do not specify noise limits for sources affecting the parkway or parkway users.

Sacramento County also retains authority in granting conditional use permits to impose development requirements including the regulation of noise, vibration, odors and other similar concerns within certain performance standards in Parkway Corridor Combining zones, which are defined as property located along the American River within the unincorporated area of the County (Title II, Chapter 35, Article 3, Section 235, 34[i]). Although this section of the zoning code calls for regulating noise within certain

performance standards, specific noise standards that must be met are not identified in this section of the zoning code.

Mather Airport Land Use Compatibility Plan The State of California has adopted airport noise and safety standards that are implemented through comprehensive land use plans (CLUPs) prepared for public-use airports. The CLUPs are prepared and maintained by the ALUCs. In Sacramento County, the Sacramento Area Council of Governments (SACOG) serves as the ALUC. The noise and safety standards identified in the CLUPs for local airports are implemented through the control of land use around airports regarding noise, safety, and height restrictions. SACOG also works with cities and counties to ensure consistency between local land use plans and CLUPs developed for local airports.

The ALUCP for Mather Airport, formerly called the Mather Airport CLUP, was adopted in May 1997 and includes regional policies for land use compatibility with aircraft noise. The ALUCP for Mather Airport requires that, as development occurs in the area near the airport, affected cities and counties evaluate the impact of aircraft noise on proposed development. The ALUCP prohibits new residential development within the 65-dBA CNEL noise contours.

In addition, the County is developing the *Mather Airport Master Plan*, which will be used to guide airport development in the Mather Airport Policy Area (MAPA) over the next 20 years, while attempting to resolve related aviation, environmental, and socioeconomic issues existing in the community. One of the primary issues that the plan will address relates to the exposure of residents in nearby communities to noise generated by aircraft on approach and departure routes from Mather Airport.

The MAPA was approved by the Sacramento County Board of Supervisors in 1998 and is intended to create additional protection beyond the restrictions described in the ALUCP for Mather Airport. In addition to prohibiting new residential development within the 65-dBA CNEL contour, per the ALUCP for Mather Airport, the MAPA prohibits new residential development within the 60-dBA CNEL contour. New residential development within the MAPA, but outside the 60-dBA CNEL contour, may be approved, but will be subject to the following conditions:

- provision of minimum noise insulation to achieve 45 dB within new residential dwellings, including detached single-family dwellings, with windows closed in any habitable room;
- notification in the public report prepared by the California Department of Real Estate disclosing to prospective buyers that the parcel is located within the MAPA; and
- an aviation easement prepared by the County Counsel’s Office, granted to the County, recorded with the County Recorder, and filed with the County Department of Airports. Such an aviation easement shall acknowledge the property location within the MAPA and shall grant the right of flight and unobstructed passage of all aircraft into and out of Mather Airport.

3.10.2 Environmental Consequences and Mitigation Measures

Methods

Project details and observations during on-site noise monitoring were used to determine potential locations of sensitive receptors and potential noise- and vibration-generating land uses on the project sites. Noise-sensitive land uses and major noise sources near the project sites were identified based on existing documentation (e.g., equipment noise levels and attenuation rates) and site reconnaissance data collected between December 13 and December 16, 2010. Sensitive land uses generally include those uses where exposure to noise and vibration would result in adverse effects and uses where quiet is an essential element of their intended purpose.

Measurements of noise levels were taken in accordance with American National Standards Institute (ANSI) standards at six locations using a Larson Davis Laboratories (LDL) Model 820 precision integrating sound-level meter. Continuous 24-hour, long-term monitoring of noise levels were conducted using an LDL Model 820 sound-level meter. The sound-level meters were calibrated before and after use with an LDL Model CAL200 acoustical calibrator to ensure that the measurements would be accurate. The equipment used meets all pertinent specifications of the ANSI for Type 1 sound-level meters (ANSI S1.4-1983[R2006]). The L_{eq}, L_{max}, L_{10}, L_{50}, and L_{90} values were taken at each short-term and long-term ambient noise measurement location shown in Exhibit 3.10-1.

The sensitive receptors and their relative exposure to the impacts (considering intervening building façades and distance) were identified to assess the impacts of potential temporary and short-term construction noise on sensitive receptors. The construction noise that would be generated by the Proposed Action and Alternative 1 was predicted by using the Federal Transit Noise and Vibration Impact Assessment methodology (FTA 2006:12-1 through 12-15). The emission noise levels referenced and the usage factors were based on the Federal Highway Administration (FHWA) Roadway Construction Noise Model. The noise levels of the types of construction equipment that would be used and the resulting noise levels where sensitive receptors are located were calculated.

Traffic noise modeling was conducted based on ADT volumes obtained from the traffic analysis prepared by AECOM for this project in 2010. The FHWA Highway Traffic Noise Prediction Model (FHWA RD 77-108) was used to calculate traffic noise levels along affected roadways based on the trip distribution estimates as discussed in the traffic analysis. The FHWA model is based on CALVENO reference noise factors for automobiles, medium trucks, and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receptor, and ground attenuation factors. Truck usage and vehicle speeds on study area roadways were estimated from field observations. California Department of Transportation (Caltrans) data were also available (Caltrans 2009:13). The project's contribution to the existing traffic noise levels along area roadways was determined by comparing the predicted noise levels at a reference distance of 100 feet from the roadway centerline for the cumulative conditions with and without project-generated traffic.

Potential noise impacts from long-term (operation-related) stationary sources were assessed based on existing documentation (e.g., equipment noise levels) and site reconnaissance data. This analysis also included an evaluation of the proposed noise-generating uses that could affect noise-sensitive receptors near the project site.

To assess the land use compatibility of the project with on-site noise levels, predicted traffic noise contours were used to determine whether development of the proposed land uses would exceed the applicable noise criteria.

Groundborne vibration impacts were qualitatively assessed based on existing documentation (e.g., vibration levels produced by specific construction equipment operations) and the distance of sensitive receptors from the given source.

Groundborne vibration impacts were qualitatively assessed based on existing documentation (e.g., vibration levels produced by specific construction equipment operations) and the distance of sensitive receptors from the given source.

Assumptions

Detailed project engineering and design have not been completed for the JOC Relocation Project. This analysis assumes that construction methods would not involve pile driving or blasting, either of which would result in noise impacts that are not evaluated here. Operation of the JOC would involve approximately 600 employees occupying the site during normal workday hours, and approximately 30 employees occupying the site spread across swing shift and nighttime hours and weekends. The primary noise-generating activities would be parking lot activities, occasional use of a backup generator, and operation of heating, ventilation, and air conditioning (HVAC) equipment.

The proposed JOC facilities include emergency electrical generators, which are typically operated under two conditions: loss of main electrical supply or preventive maintenance/ testing. The operation of mechanical equipment associated with emergency operations is exempt from the noise standards outlined in the Sacramento County Municipal Code 6.68.090; thus, this analysis focuses on routine preventive maintenance and testing operations, which are conducted on a periodic basis. Detailed plans for the locations and types of emergency electrical generators for the facilities were not available. Reference noise-level measurements conducted for emergency generators with rated power outputs from 25 kilowatts (kW) to 220 kW resulted in noise levels ranging from 61 to 73 dBA L_{eq} and 63dBA to 84 dBA L_{max} at 50 feet. In addition, operation of generators at the proposed JOC facilities is assumed to be similar to conditions at the Interim JOC; those generators are permitted by the Sacramento Metropolitan Air Quality Management District to be operated no more than 20 hours per year.

HVAC equipment would be a primary noise source associated with the proposed office uses at either site. Equipment is usually mounted on rooftops, located on the ground, or located within mechanical rooms. Associated noise sources could take the form of fans, pumps, air compressors, chillers, or cooling towers. Noise levels from HVAC equipment vary substantially depending on unit efficiency, size, and location, but generally range from 45 dBA to 70 dBA L_{eq} at a distance of 50 feet (EPA 1971).

Construction activities are anticipated to occur for approximately 2 years if Reclamation and DWR/NWS facilities are constructed together. The first phase of construction would involve preparing the site, connecting utilities, and roadway improvements and would take approximately 10 months to complete. The second phase of construction would involve constructing buildings and finishing site work and would take approximately 14 months to complete. If Reclamation and DWR/NWS facilities are constructed separately, each phase (site preparation and building construction/finishing) would take place for each portion of the overall project (Reclamation and DWR/NWS), with somewhat reduced areas of disturbance and levels of construction activity. To ensure that the maximum level of impact is evaluated, this study evaluates completion of Reclamation and DWR/NWS facilities simultaneously.

Noise levels vary for individual pieces of equipment because equipment may come in different sizes and with different engines. Noise levels for construction equipment also vary with the activity level or duty cycle. Typical construction projects, with equipment moving from one point to another, work breaks, and idle time, have long-term noise averages that are lower than louder short-term noise events. Additionally, noise levels are calculated from the center of the activity because of the dynamic nature of a construction site. Maximum noise levels produced during construction activities by individual pieces of equipment are provided in Impact 3.10-1.

FHWA's Highway Noise Prediction Model (FHWA-RD-77-108) (FHWA 1978), used to calculate estimated traffic noise levels, is based on the California vehicle noise (CALVENO) reference noise emission factors for automobiles, medium trucks, and heavy trucks. The model takes into consideration vehicle volume, speed, roadway configuration, distance to the receiver, and ground attenuation factors but does not assume any natural or human-made shielding (e.g., the presence of vegetation, berms, walls, or buildings). Topography at the Proposed Site, especially relating to the piles of mine tailings, may provide some sound attenuation, but the calculations provided in this analysis do not take that attenuation into account.

Existing noise levels at residential areas adjacent to the Alternative 1 Site were measured to be 48 dBA L_{eq} and noise levels at the Folsom South Canal Recreation Trail were assumed to be similar to those measured in the residential areas or higher because of the parkway's proximity to Sunrise Boulevard. No long-term measurements were taken at the Alternative 1 Site because no significant receptors sensitive to noise are considered to be close to the project area.

Criteria for Determining Significance of Effects

Determinations of significance in this EIS/EIR are based on the environmental checklist in Appendix G of the State CEQA Guidelines, as amended. These determinations are provided pursuant to CEQA. The Proposed Action and alternatives under consideration would be considered to have a significant impact related to noise if they would:

- result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;

- expose people residing or working in the project area to excessive noise levels;
- expose persons to or generate excessive groundborne vibration or groundborne noise levels;
- for a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels; or
- for a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

Generally, a project may have a significant effect on the environment if it would substantially increase the ambient noise levels for adjoining areas or expose people to severe noise levels. In practice, more specific professional standards have been implemented. These standards state that a noise impact would be significant if it would generate noise that would conflict with local planning criteria or ordinances or substantially increase noise levels at noise-sensitive land uses.

For the JOC Relocation Project, the significance of anticipated noise effects is based on a comparison between predicted noise levels and noise criteria defined by Sacramento County (Proposed Site) or the city of Rancho Cordova (Alternative 1 Site). For this project, noise impacts would be significant if existing or proposed noise-sensitive land uses would be exposed to noise levels in excess of the *1993 County of Sacramento General Plan* Noise Element, Sacramento County Municipal Code standards, *Rancho Cordova General Plan* Noise Element, or City of Rancho Cordova Noise Ordinance standards as described above (see "Regulatory Setting"), or if implementing the Proposed Action or Alternative 1 would increase ambient noise levels at noise-sensitive land uses in excess of those listed in Tables 3.10-6 or 3.10-7.

The following considerations apply to the first three significance thresholds:

- **Temporary, short-term noise impacts from construction:** Temporary, short-term noise impacts caused by construction would be significant if construction-generated noise levels exceed the applicable standards at nearby noise-sensitive land uses.
- **Noise impacts from increased daily traffic:** For all affected noise-sensitive uses, noise that would be generated by an increase in daily traffic volumes caused by the project would be significant if it would cause the overall exterior noise level to exceed the "normally acceptable" noise standard compatible with exterior land uses (i.e., 60 dBA L_{dn}/CNEL at outdoor activity areas), exceed the interior noise standard (i.e., 45 dBA L_{dn}/CNEL in any inhabitable room), or increase ambient noise levels by 5 dBA.
- **Exposure of sensitive receptors to, or generation of, excessive vibration levels:** Temporary and short- and long-term vibration impacts would be significant if project construction or operation would result in the exposure of sensitive receptors to, or would generate, vibration levels that exceed Caltrans's recommended standard of

0.2 inches per second (in/sec) peak particle velocity (PPV) regarding the prevention of structural damage for normal buildings or the Federal Transit Administration's (FTA's) maximum acceptable vibration standard of 80 vibration decibels (VdB) regarding human response for residential uses (i.e., annoyance) at any nearby existing sensitive land uses.

Issues Not Discussed Further in This EIS/EIR

Compatibility with Airport Noise—The Proposed Site and the Alternative 1 Site would be located outside the adopted Mather Airport noise contours as shown in Exhibit 3.10-2. Although portions of the Alternative 1 Site would be located inside the ALUCP area, the Alternative 1 Site is not located in the airport's 60 dBA L_{dn} noise contour. The project would not cause new receptors or workers on the project site to be exposed to excessive airport noise levels. Based on the Mather ALUCP, the proposed JOC would be considered a compatible use at either project site. Therefore, this issue is not evaluated further in this EIS/EIR.

Impact Analysis

See Table 3.0-2 for a summary of impacts and mitigation measures for Alternative 2 (incorporated by reference from the Mather Field Specific Plan FEIR).

Impact 3.10-1: Increased Temporary Short-Term Noise Levels during Construction

No-Action
Under the No-Action Alternative, no construction activities would occur; therefore, the project would not expose sensitive receptors to excessive noise levels due to heavy-duty construction equipment. **No direct** or **indirect impact** would occur.

Proposed Action
The Proposed Action would involve constructing and operating office buildings, essential services operations centers, parking areas, and roadway improvements. Construction activities associated with improvements at the Proposed Site would generate temporary short-term and intermittent noise at or near individual noise-sensitive locations in the project area. Construction activities are anticipated to occur for approximately 2 years if Reclamation and DWR/NWS facilities are constructed together. The first phase of construction would involve preparing the site, connecting utilities, and roadway improvements and would take approximately 10 months to complete. The second phase of construction would involve constructing buildings and finishing site work and would take approximately 14 months to complete.

Noise levels generated during construction would fluctuate depending on the physical location of construction activities on the project site and the particular type, number, and duration of use of various pieces of construction equipment. Noise levels from construction activities are typically considered a point source and reduce at a rate of 6 dBA per doubling of distance over hard site surfaces, such as streets and parking lots. For soft site surfaces, such as grass fields and

open terrain with vegetation, the reduction rate for noise levels would be approximately 7.5 dBA per doubling of distance (FTA 2006:2-10 through 2-11).

Equipment required for site preparation and roadway improvements would include loaders, excavators, backhoes, trenchers, pavers, and various trucks. Equipment required for building construction would include pier drillers, concrete pumpers, concrete batch trucks, welders, generators, pneumatic tools, mobile cranes, and various trucks. Maximum noise levels produced during these construction activities by the individual pieces of equipment could range from 80 to 93 dBA without implementing feasible noise control at a distance of 50 feet from the nearest noise source, as indicated in Table 3.10-8. Noise levels vary for individual pieces of equipment because equipment may come in different sizes and with different engines. Noise levels for construction equipment also vary with the activity level or duty cycle. Typical construction projects, with equipment moving from one point to another, work breaks, and idle time, have long-term noise averages that are lower than louder short-term noise events. Additionally, noise levels are calculated from the center of the activity because of the dynamic nature of a construction site. For this project, based on the assumed types of equipment and period of construction, hourly noise levels are predicted to be 89 dBA L_{eq} during the site preparation period and 87 dBA L_{eq} during the building construction period, at a distance of 50 feet from the center of typical construction activity (refer Appendix C5, “Noise Monitoring and Modeling Results,” for construction noise modeling data).

The nearest noise-sensitive land uses (i.e., residences south of the Proposed Site, American River Parkway recreation area northwest and west of the Proposed Site) are located approximately 400 feet from the center of construction areas on the Proposed Site. The intervening ground type is primarily open space consisting of river cobble and vegetation and is considered acoustically soft. The river cobble that covers much of the site is deposited widely along the south boundary of the Proposed Site. As described in Chapter 2.0, “Alternatives,” this southern area of cobble would remain in place to the extent feasible. These cobble berms could provide approximately 5 dBA of noise reduction for residences adjacent to the Proposed Site.

For the purposes of this analysis, construction activities are considered to potentially occur anywhere within the project site identified for improvements in the site plan (e.g., office building, parking lot), which would represent a reasonably conservative scenario for impact analysis purposes. Construction noise attributable to the Proposed Action was estimated using the FTA noise methodology for the prediction of heavy equipment noise sources (FTA 2006:12-1 through 12-15). Based on these parameters and taking into account an existing 6-foot-high solid block wall along the residential property line adjacent to the western project boundary, construction noise levels were modeled to generate a maximum noise level of 68 dBA L_{eq} at the nearest off-site receptor (residences south of the site) during the first phase of construction (refer to Appendix C5, “Noise Monitoring and Modeling Results,” for construction noise modeling data).

Table 3.10-8
Construction Equipment Noise Emission Levels[a]

Equipment Type	Typical Noise Level (dB) at 50 feet	Equipment Type	Typical Noise Level (dB) at 50 feet
Air Compressor	80	Dump Truck	84
Auger Drill Rig	85	Generator	82
Backhoe	80	Grader	85
Clam Shovel (dropping)	93	Excavator	85
Concrete Mixer Truck	85	Jack Hammer	85
Concrete Pump Truck	82	Pneumatic Tools	85
Concrete Saw	90	Paver	85
Crane	85	Scraper	85
Dozer	85	Tractor	84

Notes: dB = A-weighted decibels (dBA)

[a] Assumes that all equipment is fitted with properly maintained and operational noise control device, per manufacturer specifications. Noise levels listed are the actual measured noise levels for each piece of heavy construction equipment.

Sources: Bolt, Beranek, and Newman 1981:8-4 through 8-5; FTA 2006:12-6 through 12-7; FHWA 2006:3

Existing noise levels at residential areas adjacent to the Proposed Site were measured to be 52 dBA L_{eq} at the American River Parkway and between 53 and 56 dBA L_{eq} at adjacent residential land uses (Exhibit 3.10-1, Appendix C5, "Noise Monitoring and Modeling Results"). Based on the noise levels measured for existing conditions and noise levels predicted during construction activities, the maximum increase in noise levels at sensitive receptors is expected to range between 12 and 15 dBA (Appendix C5, "Noise Monitoring and Modeling Results." Construction activities could result in a substantial temporary increase (i.e., exceeding 5 dB) in ambient noise levels at nearby noise-sensitive land uses. The Sacramento County noise ordinance exempts daytime construction activities (6 a.m.–8 p.m.) from compliance with the County's noise standards. However, if construction activities occur before 6 a.m. or after 8 p.m., construction-generated noise levels would not be exempt from Sacramento County noise standards and a temporary increase of more than 5 dBA would be considered a substantial temporary increase. This temporary and short-term **direct** impact would be **significant. No indirect impact** would occur.

Alternative 1

Alternative 1 would involve constructing and operating office buildings, essential services operations centers, and parking areas. Construction activities associated with improvements at the site would generate temporary short-term and intermittent noise at or near individual noise-sensitive locations in the project area. Construction activities and equipment are anticipated to be the same as discussed above for the Proposed Action.

The nearest noise-sensitive land uses (i.e., residences south of the Alternative 1 Site, recreation uses on the paved trail located along the Folsom South Canal) are located approximately 550 feet from the center of construction areas on the Alternative 1 Site. The intervening ground type is primarily open space consisting of grass fields and is considered acoustically soft. For the purposes of this analysis, construction activities are considered to potentially occur anywhere within the project site identified for improvements (e.g., office building, parking lot), which would represent a reasonably conservative scenario for impact analysis purposes. Construction noise attributable to Alternative 1 was estimated using the FTA noise methodology for the prediction of heavy equipment noise sources (FTA 2006:12-1 through 12-15). Based on these parameters, construction noise levels were modeled to generate a maximum noise level of 61 dBA L_{eq} at the nearest off-site receptor (residence) during the first phase of construction (refer to Appendix C45, "Noise Monitoring and Modeling Results," for construction noise modeling data).

Existing noise levels at residential areas adjacent to Alternative 1 Site were measured to be 48 dBA L_{eq} at adjacent residential land uses south of the site (Exhibit 3.10-1, Appendix C5, "Noise Monitoring and Modeling Results"). An existing 8-foot sound wall is along the nearest residential backyard property line, which would account for a 5-dBA reduction of construction noise levels at the outdoor activity areas adjacent to the houses. This reduction caused by the sound wall would result in overall construction noise levels of 56 dBA L_{eq} at the nearest residential outdoor activity area (Appendix C5, "Noise Monitoring and Modeling Results"). Based on the noise levels measured for existing conditions, the existing 8-foot sound wall, and noise levels predicted during construction activities, the maximum increase in noise levels at the nearest sensitive receptors is expected to be 8 dBA. Construction activities could result in a substantial temporary increase (i.e., exceeding 5 dB) in ambient noise levels at nearby noise-sensitive land uses. The Sacramento County Noise Ordinance, adopted by the City, exempts daytime construction activities (6 a.m.–8 p.m.) from compliance with the County's noise standards. However, if construction activities occur before 7 a.m. or after 6 p.m., construction-generated noise levels would not be exempt from the city of Rancho Cordova noise standards and a temporary increase of more than 5 dBA would be considered a substantial temporary increase. This temporary and short-term **direct** impact would be **significant. No indirect impact** would occur.

Mitigation Measure 3.10-1: Implement Measures to Reduce Temporary Short-Term Noise Levels from Construction Activities

No-Action
No mitigation is required.

Proposed Action and Alternative 1
Reclamation and DWR and their construction contractor will implement the following measures during construction activities to reduce temporary short-term noise levels:

a. Construction equipment will be properly maintained per manufacturers' specifications and fitted with the best available noise suppression devices (e.g., mufflers, silencers, wraps).

b. All impact tools will be shrouded or shielded, and all intake and exhaust ports on power equipment will be muffled or shielded.

c. Construction operations and related activities associated with the Proposed Action will comply with the operational hours outlined in the Sacramento County Code or City of Rancho Cordova Noise Ordinance: construction operations are exempt provided they do not take place between the hours of 8 p.m. and 6 a.m. on weekdays and Friday beginning at 8 p.m. through and including 7 a.m. on Saturday; Saturdays beginning at 8 p.m. through and including 7 a.m. on the next following Sunday and on each Sunday after the hour of 8 p.m.

d. Construction equipment will not idle for more than 15 minutes near noise-sensitive receptors.

e. Fixed/stationary equipment (e.g., generators, compressors, rock crushers, cement mixers) will be located as far as possible from noise-sensitive receptors.

Responsibility: Reclamation and DWR

Timing: Before construction

Implementing Mitigation Measure 3.10-1 and complying with requirements identified in the Sacramento County Code or the City of Rancho Cordova Noise Ordinance would limit construction activity to daytime hours, avoid the more noise-sensitive nighttime hours, and comply with requirements for a construction noise exemption. Implementing Mitigation Measure 3.10-1 would reduce the overall increase in daily noise levels at noise-sensitive receptors and be in compliance with noise standards. Therefore, this impact associated with short-term construction-generated noise levels would be reduced to a **less-than-significant** level.

Impact 3.10-2: Increased Noise Levels Related to Project Operations from Stationary Sources

No-Action
Under the No-Action Alternative, introduction of new stationary noise sources would not occur; therefore, the project would not expose noise-sensitive receptors to excessive long-term noise levels caused by new stationary equipment. N**o direct** or **indirect impact** would occur.

Proposed Action
Operation of the JOC at the Proposed Site would involve approximately 600 employees occupying the site during normal workday hours, which includes

approximately 30 employees occupying the site spread across swing shift and nighttime hours and weekends. The primary noise-generating activities would be parking lot activities, occasional use of an emergency backup generator, and operation of heating, ventilation, and air conditioning (HVAC) equipment described below.

Parking Lot Activities

As described in Chapter 2, "Alternatives," the Proposed Site would have approximately 865 parking stalls to accommodate approximately 600 employees and up to 265 visitors and government vehicles. Parking stalls would be provided in areas surrounding and adjacent to proposed buildings. For the purposes of this analysis, parking stalls were divided into four separate areas to represent individual point sources of noise. In addition, noise-sensitive receptors adjacent to the project site were divided based on their relative location to parking areas. Based on this information, noise levels generated by parking lot activities are predicted to range between 46 and 48 dBA L_{eq} at the nearest noise-sensitive receptor (i.e., residences south of the site, American River Parkway east of the site) (refer to Appendix C5, "Noise Monitoring and Modeling Results," for parking lot noise modeling data). Existing noise levels at residential areas adjacent to the Proposed Site were measured to be 52 dBA L_{eq} at the American River Parkway and between 53 and 56 dBA L_{eq} at adjacent residential land uses. The addition of parking lot noise to the existing noise levels at these noise-sensitive locations would increase existing noise levels by 1 dBA and would not cause a perceptible change (3 dBA) in ambient noise levels. Overall, implementing the Proposed Action would not result in a substantial permanent increase in ambient noise levels near the project above levels existing without the project or exceed applicable stationary noise standards. This **direct** impact would be **less than significant**. **No indirect impact** would occur.

Emergency Electrical Generator Operation and Testing/Preventive Maintenance

The proposed facilities with the JOC Relocation Project include emergency electrical generators. Emergency generators are typically operated under two conditions: loss of main electrical supply or preventive maintenance/testing. The operation of mechanical equipment associated with emergency operations is exempt from the noise standards outlined in the Sacramento County Municipal Code 6.68.090; thus, this analysis focuses on routine preventive maintenance and testing operations, which would be conducted on a periodic basis and only during daytime hours.

Detailed plans for the locations and types of emergency electrical generators for the facilities were not available. Reference noise-level measurements conducted for emergency generators with rated power outputs from 25 kW to 220 kW resulted in noise levels ranging from 61 to 73 dBA L_{eq} and 63dBA to 84 dBA L_{max} at 50 feet. Based on these reference noise levels, emergency electrical generators could be located within 400 feet of noise-sensitive land uses and could potentially exceed the level specified in the Sacramento County Municipal Code

6.68.070 for daytime stationary-source noise (55 dBA L_{eq}). Sensitive receptors are located within 400 feet south and west of some portions of the proposed JOC facilities. Therefore, the **direct** impact of noise levels from preventive maintenance/testing operations of emergency electrical generators would be **potentially significant**. **No indirect impact** would occur.

HVAC Operation

Operation of the JOC would include operation of HVAC units as part of the proposed office and essential services facilities. This stationary noise source could potentially exceed the County's noise standards and result in a noticeable increase in ambient noise levels at existing noise-sensitive receptors.

HVAC equipment would be a primary noise source associated with the proposed office uses. Equipment is usually mounted on rooftops, located on the ground, or located within mechanical rooms. Associated noise sources could take the form of fans, pumps, air compressors, chillers, or cooling towers. Noise levels from HVAC equipment vary substantially depending on unit efficiency, size, and location, but generally range from 45 dBA to 70 dBA L_{eq} at a distance of 50 feet (EPA 1971). Noise levels generated by operation of HVAC equipment was modeled at 65 dBA L_{eq} at the residences south of the site and 62 dBA L_{eq} at the American River Parkway north of the site (refer to Appendix C5, "Noise Monitoring and Modeling Results," for HVAC noise modeling data). Existing noise levels at residential areas adjacent to the Proposed Site were measured to be 54–61 dBA L_{dn} at adjacent residential land uses and 52 dBA L_{eq} at the American River Parkway.

The noise levels measured for existing conditions and noise levels predicted for HVAC operations show that a maximum increase in noise levels at sensitive receptors would be between 3 and 10 dBA (Appendix C5, "Noise Monitoring and Modeling Results"). Operation of HVAC equipment could result in a substantial permanent increase (i.e., exceeding 5 dB) in ambient noise levels at nearby noise-sensitive land uses. This determination is based on HVAC equipment being installed and operated without shielding. This **direct** impact would be **significant. No indirect impact** would occur.

Alternative 1

Operation of the JOC at the Alternative 1 Site would involve approximately 600 employees occupying the site during normal workday hours, including approximately 30 employees occupying the site spread across swing shift and nighttime hours and weekends. The primary noise-generating activities would be parking lot activities, occasional use of emergency backup generators, and operation of HVAC equipment.

Parking Lot Activities

As described in Chapter 2, "Alternatives," the Proposed Site would have approximately 865 parking stalls to accommodate approximately 600 employees and up to 265 visitors and government vehicles. Parking stalls would be provided in

areas surrounding and adjacent to proposed buildings. For the purposes of this analysis, parking stalls were divided into two separate areas to represent individual point sources of noise. In addition, noise-sensitive receptors adjacent to the project site were divided based on their relative location to parking areas. Based on this information, noise levels generated by parking lot activities are predicted to range between 43 and 50 dBA L_{eq} at the nearest noise-sensitive receptor (i.e., residence, recreational users) (refer to Appendix C5, "Noise Monitoring and Modeling Results," for parking lot noise modeling data). Existing noise levels at residential areas adjacent to the Alternative 1 Site were measured to be 48 dBA L_{eq} and noise levels at the Folsom South Canal Recreation Trail were assumed to be similar to those measured in the residential areas or higher because of the parkway's proximity to Sunrise Boulevard. Overall, implementing Alternative 1 would not result in a substantial permanent increase in ambient noise levels near the Alternative 1 Site above levels existing without the project or exceed applicable stationary noise standards. This **direct** impact would be **less than significant**. **No indirect impact** would occur.

Emergency Electrical Generator Operation and Testing/Preventive Maintenance

The operation of mechanical equipment associated with emergency operations is exempt from the noise standards outlined in the City of Rancho Cordova Noise Ordinance 6.68.090; thus, this analysis focuses on routine preventive maintenance and testing operations, which would be conducted on a periodic basis and only during daytime hours.

Detailed plans for the locations and types of emergency electrical generators for the facilities were not available. Reference noise-level measurements conducted for emergency generators with rated power outputs from 25 kW to 220 kW resulted in noise levels ranging from 61 to 73 dBA L_{eq} and 63dBA to 84 dBA L_{max} at 50 feet. Based on these reference noise levels, emergency electrical generators could be located within 400 feet of noise-sensitive land uses and could potentially exceed the level specified in the City of Rancho Cordova Noise Ordinance 6.68.070 (for daytime stationary-source noise (55 dBA L_{eq}). Sensitive receptors are located within 400 feet south of some of the proposed JOC facilities. Therefore, the **direct** impact of noise levels from preventive maintenance/testing operations of emergency electrical generators would be **potentially significant**. **No indirect impact** would occur.

HVAC Operation

Operation of the JOC would include operation of HVAC units as part of the proposed office and essential services facilities. This stationary noise source could potentially exceed the City's noise standards and result in a noticeable increase in ambient noise levels at existing noise-sensitive receptors.

HVAC equipment would be a primary noise source associated with the proposed office uses, as detailed above for the Proposed Action. Noise levels generated by operation of HVAC equipment were modeled to be 59 dBA L_{eq} at nearby

residences and 70 dBA L_{eq} at the Folsom South Canal bike trail (refer to Appendix C5, "Noise Monitoring and Modeling Results," for HVAC noise modeling data). Existing noise levels at residential areas adjacent to the Alternative 1 Site were measured to be 48 dBA L_{eq} and assumed to be similar at the paved bike trail along the Folsom South Canal Recreation Trail.

The noise levels measured for existing conditions and noise levels predicted for HVAC operations show that a maximum increase in noise levels at sensitive receptors would be between 11 and 28 dBA (Appendix C5, "Noise Monitoring and Modeling Results"). Operation of HVAC equipment could result in a substantial permanent increase (i.e., exceeding 5 dB) in ambient noise levels at nearby noise-sensitive land uses. This determination is based on HVAC equipment being installed and operated without shielding. This **direct** impact would be **significant. No indirect impact** would occur.

Mitigation Measure 3.10-2a: Locate Emergency Generators More Than 400 Feet from Sensitive Receptors or Enclose Emergency Generator Equipment

No-Action
No mitigation is required.

Proposed Action and Alternative 1
During project design at the selected site, Reclamation and DWR will determine whether emergency generator equipment can be located farther than 400 feet from nearby sensitive receptors (residents to the south and west for the Proposed Action, residents to the south for Alternative 1). If equipment can be located outside this area, no additional mitigation is required. If generator equipment would be located less than 400 feet from sensitive receptors, Reclamation and DWR will enclose emergency electrical generator equipment within a structure (e.g., cinder block room or mechanical building located at ground level) if required to meet noise standards.

Responsibility: Reclamation and DWR

Timing: During project design and construction

Mitigation Measure 3.10-2b: Enclose HVAC Equipment

No-Action
No mitigation is required.

Proposed Action and Alternative 1
Reclamation and DWR will enclose HVAC equipment within noise shielding (rooftop parapets) or within a structure (e.g., cinder block room or noise enclosure when located at ground level) if required to meet noise standards.

Responsibility: Reclamation and DWR

Timing: During project design and construction

Implementing Mitigation Measures 3.10-2a and 3.10-2b and compliance with requirements identified in Sacramento County Municipal Code and the City of Rancho Cordova Noise Ordinance would fully reduce the overall operational noise levels from emergency electrical generator and HVAC equipment at noise-sensitive receptors adjacent to the Proposed Site and the Alternative 1 Site because the noise source would either be located within a mechanical room or shielded by parapets or enclosures. The estimated noise reduction from such enclosure would be between 8 and 25 dBA L_{eq}, resulting in an increase in noise levels of 5 dBA or less at sensitive receptors at either site. Therefore, this impact associated with long-term operations-related noise levels would be reduced to **less than significant**.

Impact 3.10-3: Increased Long-Term Noise Levels Related to Project Traffic Operations

No-Action
Under the No-Action Alternative, no additional traffic along project roadways would occur; therefore, the project would not be exposed to increased traffic noise levels. N**o direct or indirect impact** would occur.

Proposed Action
Long-term operation of the Proposed Action would result in an increase in ADT volumes on the local roadway network and, consequently, an increase in noise levels from traffic sources along affected segments. To examine the effect of project-generated traffic increases, traffic noise levels associated with the Proposed Action were calculated for roadway segments in the project area using the FHWA Highway Noise Prediction Model (FHWA-RD-77-108). Traffic noise levels were modeled under existing and cumulative (2035) conditions, with and without implementing the Proposed Action, based on ADT volumes and the distribution thereof developed by AECOM in 2010. Vehicle speeds and truck volumes on local area roadways were determined based on field observations. Additional input data included day/night percentages of autos, medium and heavy trucks, vehicle speeds, ground attenuation factors, and roadway widths. Table 3.10-9 summarizes the modeled traffic noise levels at 100 feet from the centerline of affected roadway segments in the project area under existing plus project conditions. Table 3.10-10 summarizes the modeled traffic noise levels at 100 feet from the centerline of affected roadway segments in the project area under cumulative (2035) conditions.

The modeling conducted shows that implementing the Proposed Action would not result in substantial traffic noise level increases compared to noise levels without the project. Existing traffic volumes were not available for Nimbus Road; however, as shown in Table 3.10-9 and Table 3.10-10, Nimbus Road would not exceed Sacramento County transportation noise standards at adjacent sensitive receptors. Therefore, long-term noise levels from project-generated traffic sources would not result in a substantial permanent increase in ambient noise levels (5 dB or greater) under cumulative conditions or exceed applicable transportation noise

standards at sensitive receptors. This **direct** impact would be **less than significant**. **No indirect impact** would occur.

Table 3.10-9
Predicted Traffic Noise Levels for No Project and With the Proposed Action under Existing Conditions

Roadway	Segment		L_{dn} at 100 Feet, dB			
	From	To	No Project	With Proposed Action	Net Change	Significant Impact?
Gold Country Boulevard	Tributary Crossings	Nimbus Road	58	58	0	No
	Nimbus Road	Hazel Avenue	58	59	1	No
	Hazel Avenue	Nimbus Dam	48	48	0	No
Folsom Boulevard	Mercantile Drive	Hazel Avenue	66	66	0	No
	Hazel Avenue	Aerojet Drive	66	66	0	No
Hazel Avenue	Curragh Downs Drive	Gold Country Boulevard	70	70	0	No
	Gold Country Boulevard	U.S. 50 Southbound Ramp	71	71	0	No
	U.S. 50 Southbound Ramp	U.S. 50 Northbound Ramp	71	71	0	No
	U.S. 50 Northbound Ramp	Folsom Boulevard	67	67	0	No
	Folsom Boulevard	Albany Avenue	54	54	0	No
Nimbus Road	Gold Country Boulevard	Project Site	--	50	--	--

Notes: dB = A-weighted decibels; L_{dn} = day-night average noise level; U.S. 50 = U.S. Highway 50.
Traffic noise levels are predicted at a standard distance of 100 feet from the roadway centerline and do not account for shielding from existing noise barriers or intervening structures. Traffic noise levels may vary depending on actual setback distances and localized shielding.
Refer to Appendix C5, "Noise Monitoring and Modeling Results," for traffic noise modeling data.
Source: Data modeled by AECOM in 2010

Table 3.10-10
Predicted Traffic Noise Levels for No Project and With the Proposed Action under Future Cumulative Conditions (2035)

Roadway	Segment		L_{dn} at 100 Feet, dB			
	From	To	No Project	With Proposed Action	Net Change	Significant Impact?
Gold Country Boulevard	Tributary Crossings	Nimbus Road	62	62	0	No
	Nimbus Road	Hazel Avenue	62	62	0	No
	Hazel Avenue	Nimbus Dam	51	51	0	No
Folsom Boulevard	Mercantile Drive	Hazel Avenue	70	69	-1	No
	Hazel Avenue	Aerojet Drive	69	69	0	No
Hazel Avenue	Curragh Downs Drive	Gold Country Boulevard	73	73	0	No
	Gold Country Boulevard	U.S. 50 Southbound Ramp	73	73	0	No
	U.S. 50 Southbound Ramp	U.S. 50 Northbound Ramp	73	73	0	No
	U.S. 50 Northbound Ramp	Folsom Boulevard	71	71	0	No
	Folsom Boulevard	Albany Avenue	67	67	0	No
Nimbus Road	Gold Country Boulevard	Project Site	--	50	--	--

Notes: dB = A-weighted decibels; L_{dn} = day-night average noise level; U.S. 50 = U.S. Highway 50.
Traffic noise levels are predicted at a standard distance of 100 feet from the roadway centerline and do not account for shielding from existing noise barriers or intervening structures. Traffic noise levels may vary depending on actual setback distances and localized shielding.
Refer to Appendix C5, "Noise Monitoring and Modeling Results," for traffic noise modeling data.
Source: Data modeled by AECOM in 2010

Alternative 1

Long-term operation of Alternative 1 would result in an increase in ADT volumes on the local roadway network and, consequently, an increase in noise levels from traffic sources along affected segments. To examine the effect of project-generated traffic increases, traffic data associated with Alternative 1 were calculated as detailed above for the Proposed Action. Table 3.10-11 summarizes the modeled traffic noise levels at 100 feet from the centerline of affected roadway segments in the project area under existing plus project conditions. Table 3.10-12 summarizes the modeled traffic noise levels at 100 feet from the centerline of affected roadway segments in the project area under future cumulative (2035) project conditions.

Table 3.10-11
Predicted Traffic Noise Levels for No Project and With Alternative 1 under Existing Conditions

Roadway	Segment		L_{dn} at 100 Feet, dB			
	From	To	No Project	With Alt 1	Net Change	Significant Impact?
Kilgore Road	International Drive	Crawford Drive	61	61	0	No
	Crawford Drive	White Rock Road	61	62	1	No
	White Rock Road	Sun Center Drive	56	56	0	No
Sunrise Boulevard	Sanders Drive	White Rock Road	69	70	1	No
	White Rock Road	U.S. 50 Northbound Ramp	69	70	1	No
	U.S. 50 Northbound Ramp	U.S. 50 Southbound Ramp	71	71	0	No
	U.S. 50 Southbound Ramp	Zinfandel Drive	70	71	1	No
White Rock Road	Prospect Park Drive	Kilgore Road	67	67	0	No
	Kilgore Road	Sunrise Boulevard	68	68	0	No
	Sunrise Boulevard	Fitzgerald Road	66	66	0	No

Notes: dB = A-weighted decibels; L_{dn} = day-night average noise level; U.S. 50 = U.S. Highway 50.
Traffic noise levels are predicted at a standard distance of 100 feet from the roadway centerline and do not account for shielding from existing noise barriers or intervening structures. Traffic noise levels may vary depending on actual setback distances and localized shielding.
Refer to Appendix C5, "Noise Monitoring and Modeling Results," for traffic noise modeling data.
Source: Data modeled by AECOM in 2010

Table 3.10-12
Predicted Traffic Noise Levels for No Project and With Alternative 1 under Future Cumulative Conditions (2035)

Roadway	Segment		L_{dn} at 100 Feet, dB			
	From	To	No Project	With Alt 1	Net Change	Significant Impact?
Kilgore Road	International Drive	Crawford Drive	63	63	0	No
	Crawford Drive	White Rock Road	63	63	0	No
	White Rock Road	Sun Center Drive	58	58	0	No
Sunrise Boulevard	Sanders Drive	White Rock Road	70	70	0	No
	White Rock Road	U.S. 50 Northbound Ramp	70	70	0	No
	U.S. 50 Northbound Ramp	U.S. 50 Southbound Ramp	72	72	0	No
	U.S. 50 Southbound Ramp	Zinfandel Drive	73	73	0	No
White Rock Road	Prospect Park Drive	Kilgore Road	69	69	0	No
	Kilgore Road	Sunrise Boulevard	70	70	0	No
	Sunrise Boulevard	Fitzgerald Road	70	70	0	No

Notes: dB = A-weighted decibels; L_{dn} = day-night average noise level; U.S. 50 = U.S. Highway 50.
Traffic noise levels are predicted at a standard distance of 100 feet from the roadway centerline and do not account for shielding from existing noise barriers or intervening structures. Traffic noise levels may vary depending on actual setback distances and localized shielding.
Refer to Appendix C5, "Noise Monitoring and Modeling Results," for traffic noise modeling data.
Source: Data modeled by AECOM in 2010

The modeling conducted shows that implementing Alternative 1 would not result in substantial traffic noise level increases compared to noise levels without the project. Therefore, long-term noise levels from traffic sources generated by the project would not result in a substantial permanent increase in ambient noise levels (5 dB or greater) under cumulative conditions or exceed applicable transportation noise standards at sensitive receptors. This **direct** impact would be **less than significant**. **No indirect impact** would occur.

Mitigation Measure: No mitigation is required.

Impact 3.10-4: Exposure of Sensitive Receptors to Temporary and Short-Term Groundborne Noise and Vibration Levels Caused by Construction Activities

No-Action

Under the No-Action Alternative, introduction of temporary and short-term groundborne noise or vibration levels would not occur; therefore, the project would not expose sensitive receptors to excessive vibration levels from construction or operation of the project. N**o direct or indirect impact** would occur.

Proposed Action and Alternative 1

Construction activities have the potential to result in varying degrees of temporary and short-term ground vibration depending on the specific construction equipment used and the types of operations involved. As explained above, the range of vibration that is relevant to this analysis occurs from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings (FTA 2006:8-1 through 8-8). Ground vibration levels associated with various types of construction equipment are summarized in Table 3.10-13. Based on the representative vibration levels identified for various construction equipment types, sensitive receptors located near construction activities could be exposed to groundborne vibration levels exceeding the recommended FTA and Caltrans guidelines of 80 VdB and 0.2 in/sec PPV, respectively.

Table 3.10-13
Representative Vibration Source Levels for Construction Equipment

Equipment	PPV at 25 feet (in/sec)[1]	Approximate L_v (VdB) at 25 feet[2]
Large Bulldozer	0.089	87
Caisson Drilling	0.089	87
Trucks	0.076	86
Jackhammer	0.035	79
Small Bulldozer	0.003	58

Notes:
[1] Where PPV is the peak particle velocity.
[2] Where Lv is the root mean square velocity expressed in vibration decibels (VdB), assuming a crest factor of 4.
Source: FTA 2006

Groundborne noise and vibration-sensitive receptors would need to be located within 50 feet from vibration-induced construction activities to perceive noticeable (greater than 78 VdB or 0.2 in/sec PPV) groundborne noise or vibration. The nearest existing groundborne noise and vibration sensitive receptor to proposed groundborne noise and vibration activities is 150 feet. Groundborne noise and vibration levels were predicted based on VdB and PPV reference vibration levels shown in Table 3.10-13. Based on the phasing and location of development on the project site, vibration-induced construction activities would not exceed recommended Caltrans standard of 0.2 in/sec PPV regarding the prevention of structural damage for normal buildings or FTA's maximum acceptable vibration standard of 78 VdB regarding human response (i.e., annoyance) at nearby vibration-sensitive land uses (i.e., residences and recreation areas). These vibration standards would not be exceeded because vibration-sensitive land uses are greater than 50-foot distance and vibration would attenuate to less than 78 VdB and 0.2 in/sec PPV beyond 50 feet. This temporary and short-term **direct** impact would be **less than significant**. **No indirect impact** would occur.

Mitigation Measure: No mitigation is required.

Residual Significant Impacts

With implementation of mitigation measures identified above, no residual significant impacts caused by exterior noise would occur. Significant impacts would occur with construction activities and HVAC operation. Implementing Mitigation Measures 3.10-1, 3.10-2a, and 3.10-2b would fully reduce these impacts to a less-than-significant level. Restricting the hours of operation for construction activities (daytime only), requiring equipment to be properly maintained, reducing errand idling of equipment, and locating fixed or stationary equipment as far as possible from sensitive receptors would reduce overall construction noise levels. HVAC noise levels may be reduced by locating units in a mechanical room, installing rooftop parapets, or designing noise enclosures if HVAC units are located on the ground would be feasible and effectively reduce HVAC noise levels at adjacent sensitive receptors. Therefore, these impacts would be reduced to a less-than-significant level.

3.10.3 Cumulative Impacts

The geographic scope for analyzing the cumulative effects of noise on sensitive receptors was evaluated in the context of the extent to which local and regional activities can affect noise conditions in the immediate project area. Community noise conditions are often affected by local activities. Past and present projects from areas within Sacramento County and the city of Rancho Cordova (e.g., roadway construction, subdivision development) affect noise conditions in the project area through the use of heavy construction equipment and the increase in traffic resulting from introduction of new residences. For this reason, the focus of the cumulative impact analysis for noise is on effects to noise levels in the project vicinity, most importantly effects on noise-sensitive uses immediately adjacent to the project sites and how the JOC Relocation Project may affect the noise conditions locally.

Construction equipment noise and vibration from related projects would be similar in nature and magnitude to those discussed from the project in Impact 3.10-1 and 3.10-4, respectively. Specifically, noise levels from on-site construction activities would fluctuate depending on the particular type, number, and duration of usage for the varying equipment. Noise and vibration are localized occurrences; they decrease rapidly in magnitude as the distance from the source to the receptor increases. Therefore, only those related projects that are in the direct vicinity of the Proposed Site or the Alternative 1 Site would have the potential to be considered in a cumulative context with the project's incremental contribution. There is existing construction noise generated by the roadway improvements along Hazel Avenue to the north of the Proposed Site. However, it was observed during the site visit and ambient noise survey that construction noise was audible but did not dominate the noise environment and did not influence noise measurements. No planned or approved projects that would require construction activities are located in the direct vicinity of either the Proposed Site or the Alternative 1 Site. However, if another project is implemented in the direct vicinity of the Proposed Action or Alternative 1, those individual projects would be required to mitigate construction noise at each project site. As discussed in Impact 3.10-1, construction of the JOC Relocation Project would result in a significant impact from temporary, short-term equipment noise levels. Implementation of Mitigation Measure 3.10-1 would reduce this impact to a less-than-significant level. In addition, as discussed in Impact 3.10-4, construction of the project would result in less-than-significant impacts from temporary, short-term groundborne noise and vibration levels. Thus, the project would not cause a cumulatively considerable incremental contribution to a significant cumulative impact from temporary, short-term groundborne noise and vibration levels.

Stationary-source noise from related projects would be similar in nature and magnitude to those discussed from the project in Impact 3.10-2 for use of emergency backup generators, mechanical HVAC equipment, and parking lot activities. Operation of the related projects could result in the long-term stationary source noise levels that exceed applicable standards at nearby sensitive receptors and/or result in substantial increases in ambient noise levels. While these types of noise levels could be controlled and associated noise levels reduced at the source (e.g., noise walls, enclosures, located in shielded locations, properly equipped and maintained), there is no guarantee these control measures would be included in all of the related projects. Therefore, a significant impact could occur from the related projects. As discussed in Impact 3.10-2, project operation would result in a significant impact from long-term stationary source noise levels; however, implementation of Mitigation Measures 3.10-2a and 3.10-2b would reduce this impact to a less-than-significant level in the direct vicinity of the related projects. Thus, the project would not cause a cumulatively considerable incremental contribution to a significant cumulative impact from long-term stationary noise sources.

Implementation of related projects would result in an increase in ADT volumes on affected roadway segments and, consequently, an increase in traffic source noise. Traffic noise levels associated with the related projects were predicted for affected roadway segments using FHWA's Highway Noise Prediction Model (FHWA-RD-77-108) (FHWA 1978) and traffic data (e.g., ADT volumes, vehicle speeds, and percent distribution of vehicle types). This model is based on the CALVENO reference noise emission factors

for automobiles, medium trucks, and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and ground attenuation factors and does not assume any natural or human-made shielding (e.g., the presence of vegetation, berms, walls, or buildings). Tables 3.10-10 and 3.10-12 summarize the modeled traffic noise levels at the approximate road corridor boundary under future no project conditions, essentially the noise levels attributable only to the related projects. In comparison to those levels shown in Tables 3.10-9 and 3.10-11 under the existing no project conditions, implementation of the related projects would result in substantial (e.g., 3 dB L_{dn}/CNEL where traffic noise levels range between 60 and 65 dB L_{dn}/CNEL, or 1.5 dB L_{dn}/CNEL where traffic noise levels are greater than 65 dB L_{dn}/CNEL) net increases along affected roadway segments. Therefore, the related projects could result in a significant impact from long-term exposure of sensitive receptors to increased traffic noise levels. As discussed in Impact 3.10-3, project operation would not result in a significant impact from the long-term exposure of sensitive receptors to increased traffic noise levels on the same affected roadway segments. Thus, the project would not cause a cumulatively considerable incremental contribution to this significant cumulative impact from the long-term exposure of sensitive receptors to increased traffic noise levels.

3.11 Public Services and Utilities

This section describes the public services and utilities that would be required to support implementation of the Reclamation and DWR JOC Relocation Project. This section includes an evaluation of demands for fire protection services; law enforcement services; water supply; wastewater service; solid waste; and dry utilities, including gas, electricity, communications, and cable television service. This section also evaluates impacts of energy demand and consumption, as required under Appendix F of the State CEQA Guidelines, as amended (California Public Resources Code 15000 *et seq*.). Impacts are evaluated in relation to increased demand on public services and utilities associated with the Proposed Action and alternatives under consideration needed to provide the services that could potentially lead to adverse environmental effects.

The availability of and potential direct and indirect impacts related to parks and recreation facilities are addressed in Section 3.12, "Recreation."

3.11.1 Affected Environment

Environmental Setting

Fire Protection Services The Sacramento Metropolitan Fire District (SMFD) currently provides fire protection services to unincorporated areas of Sacramento County and to the cities of Rancho Cordova and Citrus Heights. SMFD offers fire protection, fire suppression, inspection, plan checking, emergency transportation and medical services, public education, advanced life support, and rescue services to the unincorporated portions of Sacramento County. SMFD was formed in 2000 by consolidation of the American River Fire District and the Sacramento County Fire Protection District. As the largest fire district in Sacramento County, SMFD currently operates 42 stations and provides service through 750 uniformed and support personnel to nearly 600,000 people in a 417-square-mile area. SMFD operates 10 transporting Advanced Life Support medics, seven reserve transporting medics, 38 engine companies, five truck companies, 24 grass engines, two crash rescue rigs, six water tenders, four swift water rescue bikes, five swift water rescue inflatable rubber boats, five air units, three reserve firefighter engine companies, and two reserve firefighter grass engines (SMFD 2009). Many of SMFD's engines are paramedic staffed, and all responding units provide coverage by emergency medical technicians. SMFD's personnel are trained and equipped to deal not only with emergency medical alarms and structural or wildland fires, but also with swift water emergencies, confined space incidents, technical rescues, hazardous materials incidents, and crash fire rescue.

To improve response times for fire districts within Sacramento County, the County Department of Emergency Medical Services developed a Joint Powers Authority (JPA) for a unified-dispatch system to respond to fire and emergency related incidents. Under the JPA, the closest unit available is dispatched to an incident, and fire district boundaries are not considered when an incident occurs. The JPA, known as the Regional Fire and Rescue Training Authority, is made up of the California Office of Emergency Services'

Fire and Rescue Branch, SMFD, and the Sacramento Fire Department (City of Rancho Cordova 2006a: 4.12-2).

The Insurance Services Office (ISO) rating is the recognized classification for a fire department or district's ability to defend against major fires. According to the ISO, newly developing urban areas should have a fire station opened within 1.5 miles of all commercial development and 2.5 miles of all residential development when "build-out" exceeds 20% of the planning area. An ISO rating of class 10 generally indicates no protection, whereas a rating of class 1 indicates high firefighting capability. The SMFD's ISO rating is currently a class 3 for hydrant areas and class 6 for areas without hydrants, and the department currently has a response time of 4 to 6 minutes for emergency calls, where staffing levels are adequate (Sacramento County 2009b: 4-27, Perkins, pers. comm., 2010).

First-response service to the Proposed Site would be provided by Station 32, which is located at 8890 Roediger Lane in Fair Oaks, approximately 2.3 miles north of the site via Hazel Avenue. Station 32 operates one engine company and one paramedic ambulance. In 2009, Station 32 responded to 3,822 alarms, providing a response time of 6 minutes or less more than 90% of the time (SMFD 2010a).

First-response service to the Alternative 1 Site would be provided by Station 66, which is located at 3180 Kilgore Road in Rancho Cordova, approximately 0.1 mile north of the site via Kilgore Road. Station 66 operates one engine company and one paramedic ambulance. In 2009, Station 66 responded to 1,919 alarms, providing a response time of 6 minutes or less more than 90% of the time (SMFD 2010b).

The funding and expenditures for SMFD are facilitated through SMFD's Capital Improvement Program. Other sources include special tax/benefit assessments, bond issues, impact/development fees, and grants. New development is responsible for the full cost of additional facilities and equipment necessary as a result of that development. This revenue is typically generated through fire impact fees (used exclusively for construction of new-growth stations and associated apparatus), ambulance transport fees, and service fees (mostly from fire prevention plan checking charges) (City of Rancho Cordova 2006a: 4.12-2).

Law Enforcement Services Law enforcement services for the Proposed Site are provided by the Sacramento County Sheriff's Department (SCSD) North Division (North Division). The North Division provides patrol and investigative services to the communities of Carmichael, Fair Oaks, Gold River, Antelope, North Highlands, Foothill Farms, Orangevale, and other unincorporated areas of Sacramento County. The division is staffed by over 134 sworn officers and 19 support staff (SCSD 2011a). The patrol officers and detectives serving these areas work out of the Garfield Station located at 5510 Garfield Avenue, approximately 16.7 miles west of the Proposed Site. The North Division also maintains the Marconi Service Center located at 2500 Marconi Avenue, approximately 9.7 miles northwest of the site. The Marconi Service Center is staffed with a Sergeant, Problem-Oriented Policing Officers, a Crime Prevention Specialist, an office manager, and a staff of volunteers. This center assists the community through the

organization and presentation of community meetings, helping to establish Business and Neighborhood Watch programs, taking reports, and providing public assistance and information at the front counter (SCSD 2011b).

Law enforcement services for the Alternative 1 Site are provided by the Rancho Cordova Police Department. The Rancho Cordova Police Department is contracted through the SCSD Patrol Services and has adopted an agreement with SCSD stating that all law enforcement for Rancho Cordova will be provided by the SCSD's East Division. The contracted services include patrol, traffic enforcement, investigations, and administrative services. As part of the City's contract with SCSD, the City pays the salaries of 55 sworn and seven unsworn staff members, who work solely for the City (Rancho Cordova Police Department 2010). The police department is located at 10361 Rockingham Drive (at Mather Field Road), approximately 2.4 miles southwest of the Alternative 1 Site.

One important measurement of service delivery at the Proposed Site and the Alternative 1 Site is response time to emergency calls for service. The Police Department Service Delivery Plan calls for emergency times of 5 minutes or less for Priority One calls. A Priority One call is a violent crime against a person or an emergency requiring an immediate response to save a life. The police department maintains an average response time for Priority One calls for service of 5 minutes or less. Daily assessments are conducted on a call-by-call basis, with the goal of improving the department's response times.

The California Highway Patrol (CHP) provides traffic regulation enforcement, emergency management, and vice assistance on State highways, all Federal interstate highways, and other major roadways in unincorporated portions of the eastern Sacramento County area. The Proposed and Alternative 1 Sites are located within the Valley Division, which oversees Interstate 80, Interstate 5, U.S. Highway 50, and State Route 99. The Valley Division includes 16 area offices, three resident posts, one commercial inspection facility, one transportation management center, and three communications/dispatch centers, and is staffed with 785 uniformed officers and 250 non-uniformed personnel (CHP 2011).

Water Supply and Conveyance No public water supply facilities exist on the Proposed or Alternative 1 Sites. Water supply for the Proposed Action would be provided by Golden State Water Company (GSWC), a privately owned retail purveyor regulated by the California Public Utilities Commission (CPUC). The following discussion provides an overview of GSWC's existing and projected demands, water supply sources, and water conveyance and treatment facilities.

The GSWC generally serves the northeastern portion of Rancho Cordova and the unincorporated community of Gold River. Its service area is generally bounded by Sunrise Boulevard and Hazel Avenue to the east, Mather Air Force Base to the south, Mather Field Road to the west, and the American River to the north.

Existing and Projected GSWC Water Demands…Projections of the existing and projected future water demands within GSWC's service area were calculated for the years 2005

through 2030 in 5-year increments. Estimates of future water demands in the GSWC service area assume that all new development would be metered. The customer billing data for the metered connections from 1999 to 2004 were analyzed to obtain water-use factors for eight categories: single-family dwelling units, multifamily dwelling units, industrial, commercial, institutional/government, landscape, agricultural, and other land uses. For a given customer type, the water-use factor is calculated as the total metered water sales for each land use category divided by the number of active metered service connections for that category (GSWC 2006:4-4).

To provide an accurate projection of total water demand, other water uses (e.g., sales) and any water lost during conveyance (e.g., evaporation, leaks) have been incorporated in the total projections of water demand. "Lost water" is defined as the difference between annual production and supply and annual sales. Included in the lost water are system losses (from leaks, reservoir overflows, or inaccurate meters) and water used in operations (e.g., system flushing). Because the Cordova System is not completely metered, the percentage of unaccounted-for water for the metered accounts was used for both metered and unmetered areas. From 1999 through 2004, unaccounted-for water averaged 3.25% of the total production for the metered connections (GSWC 2006:4-5). Table 3.11-1 summarizes the past, current, and projected water sales; water system losses; and total water demand through the year 2030.

Table 3.11-1
Past, Current, and Projected Water Demands for GSWC's Cordova System

Year	Water Sales (afy)	Water System Losses (afy)	Total Water Demand (afy)
2000	15,880	533	16,413
2005	17,528	588	18,116
2010	18,885	633	19,518
2015	19,833	665	20,499
2020	20,139	675	20,814
2025	20,153	676	20,829
2030	20,153	676	20,829

Notes: afy = acre-feet per year; GSWC = Golden State Water Company
Source: GSWC 2006:4-6

GSWC's Water-Supply Sources Currently, GSWC's water supply for the Cordova System consists of surface water from the American River, groundwater extracted from the Central Basin, and Aerojet replacement water via the Folsom South Canal. Table 3.12-2 summarizes current and future water supplies available to GSWC for the Cordova System, as identified in GSWC's *2005 Urban Water Management Plan*, which would meet the projected water demands in normal water years.

Table 3.11-2
Sources of Current and Future Water Supplies for GSWC's Cordova System (afy)

Source	Year					
	2005	2010	2015	2020	2025	2030
Surface Water from the American River[1]	5,000	5,000	5,000	5,000	5,000	5,000
SMUD Water Transfer[2]	5,000	0	0	0	0	0
Aerojet Replacement Water via the Folsom South Canal[3]	0	5,000	5,000	5,000	5,000	5,000
GSWC Groundwater[4]	13,250	7,450	4,500	4,500	4,500	4,500
Aerojet Replacement Water through SCWA [5]	0	10,200	10,200	10,200	10,200	10,200
Total Supplies	**23,250**	**27,650**	**24,700**	**24,700**	**24,700**	**24,700**

Notes: afy = acre-feet per year; GSWC = Golden State Water Company; SCWA = Sacramento County Water Agency; SMUD = Sacramento Municipal Utility District.

[1] GSWC American River rights.

[2] The agreement between GSWC and SMUD expired on July 29, 2007.

[3] Aerojet's and SCWA's agreement with GSWC requires delivery of 5,000 afy of replacement water supplies via discharge to the American River system and conveyed within the Folsom South Canal to existing GSWC intake facilities.

[4] GSWC's maximum annual extractions before 2005 were equal to 13,250 afy. GSWC has projected that by 2015, all but two of GSWC's wells would experience contamination levels that may cause their inactivation. The two remaining wells are not expected to be affected by contamination until at least 2032 and have a combined production capacity of 4,500 afy.

[5] GSWC's agreement with Aerojet has expired; therefore, the planned Aerojet water supplies through SCWA will not be available.

Sources: GSWC 2006:3-10; Sacramento County 2009b:6-17

GSWC's Surface-Water Supplies

American River Water Supplies GSWC possesses a pre-1914 appropriative right to divert up to 10,000 acre-feet per year (afy) from the American River via the Folsom South Canal at a maximum withdrawal rate of 13 million gallons per day (mgd). Appropriative surface-water rights initiated before 1914 are not subject to the Water Commission Act and successor laws related to water right permitting requirements, and thus do not require a permit from the State Water Resources Control Board (SWRCB). In 1994, GSWC entered into an "Agreement for Reallocation of Water under Co-Tenancy Agreement" with the city of Folsom to indefinitely lease 5,000 afy of its water rights to the city. GSWC diverts the remaining 5,000 afy of water from the Folsom South Canal for use within the Cordova System. During the last 20 years, GSWC has used as much as 4,784 afy of this entitlement (GSWC 2006:3-4).

Aerojet Replacement Water Aerojet and GSWC entered into a Master Settlement Agreement and Release (Settlement Agreement) under which both parties agreed to Aerojet's obligations to provide replacement water, as needed, for supply lost as a result of groundwater contamination from past activities by Aerojet. Under the settlement agreement, Aerojet guarantees that replacement water supplies of up to 5,000 afy will be made available via discharge to the American River system and conveyed within the

Folsom South Canal to existing GSWC intake facilities. The settlement agreement contains a contingency plan under which Aerojet and GSWC have reached agreement on certain actions, and which provides for a mechanism to resolve disputes if changes in the contingency plan are required (GSWC 2006:3-9).

GSWC's Groundwater Supplies GSWC pumps groundwater for the Cordova System from 15 production wells located in the Central Basin. The Cordova System has a total maximum capacity of 31,500 afy in normal years. Since 1995, GSWC has extracted a long-term average of 11,753 afy of groundwater from the Central Basin. GSWC's highest historical production occurred in 2001 when 13,257 afy was pumped. Portions of the basin are severely impaired by groundwater contamination, caused primarily by past operations at Aerojet, which is located immediately east of the Cordova System. This contamination has caused GSWC to suspend operation of several groundwater wells. However, decommissioning the wells has not lowered GSWC's overall system production capacity because GSWC has expanded its surface-water treatment and has increased extraction of uncontaminated groundwater (GSWC 2006:3-6).

It has been predicted that by 2015, all but two of GSWC's wells will experience contamination levels that may cause their deactivation. The two remaining wells are not expected to be affected by contamination until at least 2032. These two wells have a combined production capacity of 4,500 afy (Table 3.11-3).

Table 3.11-3
Projected Groundwater Pumping Volumes in GSWC's Cordova System (afy)

Water Source	Year					
	2005	2010	2015	2020	2025	2030
Central Basin	8,116	7,450	4,500	4,500	4,500	4,500

Notes: afy = acre-feet per year; GSWC = Golden State Water Company
Source: Golden State Water Company 2005:3-8

Water Conveyance and Treatment Facilities The GSWC Cordova System's distribution facilities have been designed with several interconnections to neighboring water purveyors for emergency purposes. GSWC maintains three 6-inch interconnections with California-American Water Company's distribution system on the west side of the Cordova System and a 12-inch interconnection with the city of Folsom's distribution system at the eastern edge of the Cordova System. In addition, the Cordova System has six water storage reservoirs with a total capacity of 14.5 million gallons (GSWC 2006:3-4).

American River water is withdrawn from the Folsom South Canal, which extends through the Cordova System's service area, and is treated at the Coloma water treatment plant (WTP) and the Pyrites WTP. The maximum reliable daily treatment capacities of the Coloma WTP and the Pyrites WTP are approximately 7,140 gallons per minute (gpm) and 3,150 gpm, respectively. Collectively, the Coloma WTP and the Pyrites WTP provide sufficient capacity for treatment of more than 17,000 afy (10,290 gpm) of surface

water diverted from the Folsom South Canal (GSWC 2006:3-2). A 14-inch transmission main and 16-inch GSWC transmission main are located in Gold Country Boulevard south of the Proposed Site (Gisler, pers. comm., 2011). A 12-inch GSWC water transmission main is located in Kilgore Road adjacent to the Alternative 1 Site (Gisler, pers. comm., 2001).

Wastewater Collection and Treatment Wastewater generated by the Proposed and Alternative 1 Sites would be conveyed by Sacramento Area Sewer District (SASD) (formerly CSD-1) off-site wastewater collection and conveyance facilities for treatment at the Sacramento Regional Wastewater Treatment Plant (SRWTP). The following discussion provides an overview of the SASD wastewater collection and conveyance facilities in the vicinity of the Proposed and Alternative 1 Sites and SRWTP wastewater treatment facilities.

Wastewater Collection SASD is responsible for operation and maintenance of the wastewater collection system in portions of unincorporated areas of Sacramento County; the cities of Citrus Heights, Elk Grove, and Rancho Cordova; and portions of the cities of Sacramento and Folsom (CSD-1 2006:1-1). The existing service area covers approximately 270 square miles and serves more than 1 million people (SASD 2009:5).

SASD is the largest of the four contributing agencies that make up the Sacramento Regional County Sanitation District (SRCSD). As of 2009, the SASD collection system included more than 3,000 miles of sewer pipelines, ranging in size from 4 inches to 75 inches in diameter, and 1,300 miles of lower laterals (SASD 2009:5). The collection system pipelines are categorized based on size, function, and hydraulic capacity (CSD-1 2006:1-1).

A 2006 CSD-1 Sewerage Facilities Expansion Master Plan Update (renamed *SASD Sewerage Facilities Expansion Master Plan Update*) was prepared and approved by the SASD Board of Directors in October 2008. The overall goals of the master plan update are to estimate the future capital needs of the CSD-1 trunk sewer system, both for capacity relief projects for the existing system and expansion projects to serve newly developed areas, and to provide a conceptual plan for providing sewer service to undeveloped areas. (CSD-1 2006: 1-3). SASD calculates wastewater flow rates based on land use categories and an assumed density for each category expressed in units of equivalent single-family dwellings (ESD) per gross acre of development (CSD-1 2006:2-9 and 2-10).

The Proposed Site is within SASD's Cordova Trunk Shed (CSD-1 2006: Figure 3-4). An 8-inch trunk sewer pipeline is located along Tributary Crossing Drive and Gold Country Boulevard south of the Proposed Site (Khan, pers. comm., 2011).

The Alternative 1 Site is within the SASD's Folsom Interceptor Trunk Shed (CSD-1 2006: Figure 3-4). An 8-inch trunk sewer pipeline is located in Kilgore Road west of the Alternative 1 Site (Khan, pers. comm., 2011).

Wastewater Treatment Wastewater flows collected from SASD facilities are discharged into the SRCSD interceptor system and treated at the SRWTP. Wastewater conveyed to the SRWTP is treated to a secondary level and is ultimately discharged into the Sacramento River. Currently, the SRWTP has a National Pollutant Discharge Elimination System (NPDES) permit issued by the Central Valley Regional Water Quality Control Board (RWQCB) for discharge of up to 181 mgd of treated effluent into the Sacramento River.

The *Sacramento Regional Wastewater Treatment Plant 2020 Master Plan* (2001) provides for the expansion of the SRWTP to 218 mgd based on growth rates expected to be achieved in the Sacramento County region, and provides a phased program of recommended wastewater treatment facilities and management programs to accommodate planned growth and to meet existing and anticipated regulatory requirements through the year 2020. The master plan addresses both public health and environmental protection issues while ensuring reliable service at affordable rates for SRCSD customers. The key goals of the master plan are to provide sufficient capacity to meet growth projections and an orderly expansion of SRWTP facilities, comply with applicable water quality standards, and provide for the most cost-effective facilities and programs from a watershed perspective.

The SRWTP receives and treats an average of 150 mgd (as of 2010) and has a permitted dry-weather flow design capacity of 181 mgd (SRCSD 2010). In 2000, flows were approximately 155 mgd, and were projected to increase and surpass the 181 mgd capacity by 2007. As part of the 2005 permit renewal process, the SRCSD applied for an NPDES permit from the Central Valley RWQCB to increase its permitted capacity from a maximum average dry-weather flow of 181 mgd to a maximum average dry-weather flow of 218 mgd.

In June 2010, the SRCSD removed its formal request to the Central Valley RWQCB for an increase in permitted wastewater discharge capacity. Flows to the SRWTP have decreased from water conservation efforts over the last 10 years and it is anticipated that State legislation passed in 2009, which mandates further water conservation efforts, could substantially reduce the amount of wastewater in the future. In addition, the SRCSD has prioritized its goal to increase water recycling in the region as an element to support the comprehensive effort to promote water supply reliability and Delta sustainability. Therefore, the SRCSD has determined that the SRWTP can provide capacity to future development beyond what was originally anticipated. If substantial population growth or new development occurs before 2020, the SRCSD will reevaluate expansion needs and phase treatment plant expansion to provide for sufficient long-term capacity (SRCSD 2010).

Solid Waste In 2008, the unincorporated portions of Sacramento County and the city of Rancho Cordova disposed of approximately 569,237 tons and 68,136 tons, respectively, of solid waste (California Integrated Waste Management Board [CIWMB] 2011a, 2011b). The Sacramento County Department of Waste Management and Recycling provides solid waste and recycling collection services to the unincorporated portions of Sacramento County, and Allied Waste Services provides solid waste and recycling

collection services to the city of Sacramento. Solid waste is transported to the Kiefer Landfill, near the intersection of Grant Line Road and Kiefer Boulevard.

Sacramento County owns and operates the Kiefer Landfill, and the landfill is the primary solid waste disposal facility in the County. Kiefer Landfill is a total of 1,084 acres in size, with a permitted disposal area of 660 acres. The landfill is classified as a Class III municipal solid waste landfill facility and is permitted to accept general residential, commercial, and industrial refuse for disposal, including municipal solid waste, construction and demolition debris, green materials, agricultural debris, and other nonhazardous designated debris. Kiefer Landfill produces enough renewable energy methane gas to power 9,000 homes (Sacramento County 2009a:4-2).

The landfill is permitted to accept a maximum of 10,800 tons per day (tpd) of solid waste; however, the average intake is only approximately 6,000 tpd. The Kiefer Landfill receives over 700,000 tons of waste per year (Sacramento County 2009a:4-2). The site currently has a permitted capacity of approximately 117 million cubic yards and a remaining capacity of 113 million cubic yards. Therefore, the landfill is operating below permitted capacity, and the closure date of the Kiefer Landfill is anticipated to be approximately 2064 (CIWMB 2011c).

CIWMB provides an average per-capita solid-waste disposal rate for businesses. It is assumed by CIWMB that businesses of a certain type dispose similar wastes at similar rates (per employee) regardless of the location or size of the business. The project would be designated by CIWMB as professional services. Business waste disposal rates calculated by CIWMB for professional services average 1.2 tons per employee per year (CIWMB 2009).

Recycling Facilities The California Integrated Waste Management Act (CIWMA) of 1989, commonly known as Assembly Bill (AB) 939, requires local agencies to implement source reduction, recycling, and composting (see discussion under "Regulatory Setting" below). The *Sacramento County Integrated Waste Management Plan*, adopted in March 1996, consists of a siting element, summary plan, source reduction and recycling, household hazardous wastes, and nondisposal facility elements (Sacramento County 2009a:4-13). The countywide Integrated Waste Management Plan requires recycling programs that are expected to result in 50% diversion from landfills, thereby extending the life of landfills.

As of 2007, the 50% diversion requirement is measured in terms of per-capita disposal expressed as pounds per day (ppd) per resident and per employee. The new per capita disposal and goal measurement system shifts the emphasis from an estimated diversion measurement number to using an actual disposal measurement based on population and disposal reported by disposal facilities along with evaluating program implementation efforts. For 2008, the target solid waste generation rate for the unincorporated portion of Sacramento County was 7.7 ppd per resident and 23.2 ppd per employee, and the actual measured generation rate was 5.5 ppd per resident and 17.2 ppd per employee (CIWMB 2011a). The target solid waste generation rate for the city of Rancho Cordova in 2008 was 7.5 ppd per resident and 8.3 ppd per employee, and the actual measured generation

rate was 6.1 ppd per resident and 7.9 ppd per employee (CIWMB 2011b). Therefore, as of 2008, Sacramento County and Rancho Cordova were exceeding their diversion rate goals.

Sacramento County requires all contractors to comply with the Construction and Demolition Ordinance (Title 6, Chapter 6.20), which applies to all new commercial, office, industrial, multifamily residential, and public/quasi-public building permits over $250,000 in value. Covered projects must recycle five different types of debris and materials: scrap metal; inert materials (concrete, asphalt paving, bricks); corrugated cardboard; wood pallets; and clean wood waste. The County requires contractors to document types of building materials and estimated quantities in a "Waste Management Plan" before obtaining building permits; within 30 days of project completion contractors must complete the "Waste Management Plan" to document the actual quantity of construction or demolition waste generated and demonstrate the actual quantities recycled, salvaged or reused, and/or disposed (Sacramento County 2009b).

Similarly, the city of Rancho Cordova adopted the Business and Multi-Family Recycling Ordinance (Title 6, Chapter 6.21) in October 2008. The ordinance requires businesses and multifamily residential properties with five or more units that generate 4 or more cubic yards per week of solid waste to implement an on-site recycling program. The program requires businesses and multifamily residential properties to keep recyclable materials separate from all other solid waste, to provide signs and labeled containers for the storage and collection of recyclable materials, and to either self-haul or enter into a written service agreement with a franchise hauler (i.e., Allied Waste Services, Atlas Disposal Industries, or Waste Management of Sacramento) for the collection and subsequent delivery of recyclable materials to an authorized recycling facility. Businesses and multifamily residential property owners and operators must prepare a recycling plan that provides information on the types of on-site recyclable materials and verifies labeled containers, signs, and disposal service is available to ensure compliance with the ordinance (City of Rancho Cordova 2010).

Electrical Service

Sacramento Municipal Utility District (SMUD) generates, transmits, and distributes electric power to a 900-square-mile territory in Sacramento County and a small portion of Placer County. SMUD serves a population of 589,599 customers (522,228 residential and 67,361 commercial) with 2,113 employees, 473 miles of transmission lines (110 kilovolts [kV] or more), and 9,784 miles of distribution lines (typically 12 kV) (SMUD 2009a, 2009b). In 2009, SMUD generated approximately 10,595 gigawatt hours (GWh) of electricity within its service area (California Energy Commission [CEC] 2011a).

SMUD received approval from CEC to build the first phase of the 500-megawatt (MW) Cosumnes Power Plant (CPP), which provides the utility with 1,000 MW of power to ensure SMUD's long-range plans to meet the growing power needs of Sacramento County. The gas-fired plant, which came on line in 2006, provides enough power to meet the annual needs of 450,000 single-family homes (SMUD 2006).

In addition to the CPP, SMUD has the Upper American River Project, which consists of 11 reservoirs and eight powerhouses that generate enough electricity to meet nearly 15% of SMUD's customer demand. The Upper American River Project can provide approximately 1.8 million MW of electricity during a normal water year, which is enough energy to power about 180,000 homes (SMUD 2009c).

SMUD has long-term contracts with other generators to provide an additional 1,189 MW of electricity for distribution per day. Throughout the year, SMUD buys and sells energy and capacity on a short-term basis to meet load requirements and reduce costs. In July 2006, SMUD experienced a record peak electricity daily demand of 3,299 MW (SMUD 2009a). Table 3.11-4 shows SMUD's historic electrical consumption and forecasts of future consumption.

Table 3.11-4
SMUD Service Area Electrical Consumption and Forecast

Year	Consumption (GWh)[1]
1990	8,358
2000	9,494
2005	10,536
2010	10,656
2015	11,504
2020	12,131

Note: GWh = gigawatt hours
[1] Gigawatt equals 1 billion watts.
Source: CEC 2009a:155

The Nimbus Dam hydropower facility is owned and operated by Reclamation. The power generated is marketed by the Western Area Power Administration.

In the vicinity of the Proposed Site, electrical transmission lines are located within the Nimbus Fish Hatchery, north of the site.

In the vicinity of the Alternative 1 Site, electrical transmission lines are located within Kilgore Road. A SMUD electrical substation is located northeast of the Alternative 1 Site and south of White Rock Road.

Energy Conservation SMUD has created two separate programs to grow renewable energy supplies for its customers: a green pricing program called "Greenergy" and a Renewables Portfolio Standard (RPS) program. Accounting for SMUD's renewable energy supply is done separately for these two programs and aggregated as SMUD's total, hydro-renewable energy supply.

SMUD has had the green pricing program called Greenergy since 1997. Greenergy allows customer choice in selecting renewable energy supply for 100% or 50% of their

electricity based on a monthly fee of $6.00 or $3.00, respectively. Residential customers also have the option of selecting renewable energy supply for 50% of their electricity and offsetting the carbon footprint with special purchases in carbon offset projects for a monthly fee of $10.00. Commercial Greenergy customers pay $0.1 per kilowatt-hour (kWh) for 100% renewable energy and $0.5 per kWh for 50% renewable energy (SMUD 2011a, 2011b).

The RPS program was approved by SMUD's elected board 1 year before the state RPS program was approved by the legislature and governor. To meet its annual renewables goals, SMUD both contracts for renewable electricity from independent power producers and builds and owns renewable energy power plants. SMUD has renewable energy supply goals of 23% for 2011 (20% RPS plus 3% Greenergy in 2011). The final supply numbers compiled for 2006 show that SMUD provided about 13% of retail sales of eligible, hydro-renewable electricity supply (SMUD 2007:2).

SMUD has supported several new renewables projects that began providing electricity to the grid in 2002. The SMUD-owned Solano Wind Project installed wind turbines generating 39 MW in 2002, and an additional 63 MW of wind turbines were installed in 2007. This wind project is expected to have turbines generating over 200 combined MW installed by 2011. SMUD also recently signed a Power Purchase Agreement (PPA) contract for the second phase of the Kiefer Landfill Gas-to-Electricity Project, which is on line now and providing an additional 5.7 MW. SMUD also signed a PPA several years ago for a California wind project that came on line in phases from 2003 to 2007, and now provides a total of 75 MW (SMUD 2007:3).

Natural Gas Service Natural gas service in Sacramento County and the city of Rancho Cordova is provided by Pacific Gas and Electric Company (PG&E) through portions of PG&E's 46,000 miles of natural gas distribution pipelines. In 2009, PG&E delivered approximately 4,572 million therms (MM therms) of natural gas throughout its service area (CEC 2011b). Of this total, Sacramento County received 315 MM therms, which accounted for 0.07% of the natural gas deliveries within the PG&E service area (CEC 2011c). Table 3.12-5 shows PG&E's historic natural gas consumption and forecasts of future consumption. CEC has determined that the decrease in natural gas consumption between 2005 and 2010 results from both greater energy conservation and the slowdown in construction of new homes and businesses (CEC 2009a:220).

Whenever possible, PG&E adds capacity in an existing easement either by replacing smaller mains with larger mains, by constructing additional mains parallel to the existing facilities, or by increasing the operating pressure of existing mains (Sacramento County 2007:69). In the vicinity of the Proposed Site, PG&E natural gas mains are located within the Nimbus Fish Hatchery, north of the site.

In the vicinity of the Alternative 1 Site, PG&E natural gas mains are located in Kilgore Road.

Table 3.11-5
PG&E Service Area Natural Gas Consumption and Forecast

Year	Consumption (MM Therms)
1990	5,275
2000	5,291
2005	4,724
2010	4,186
2015	4,315
2020	4,388

Note: MM therms = million therms
Source: CEC 2009a:220

Communications AT&T Inc. (AT&T) would provide telecommunications service to the Proposed and Alternative 1 Sites. In the vicinity of the Proposed Site, AT&T transmission lines are located within the Nimbus Fish Hatchery, north of the site. Telephone, radio, and data transmission facilities are present at the fish hatchery and Nimbus Dam. Near the Alternative 1 Site, AT&T transmission lines are located within Kilgore Road.

Regulatory Setting

Federal Plans, Policies, Regulations, and Laws No Federal plans, policies, regulations, or laws related to public services and utilities are relevant to the Proposed Action or alternatives under consideration.

State Plans, Policies, Regulations, and Laws
California Occupational Safety and Health Administration In accordance with California Code of Regulations Title 8 Sections 1270 “Fire Prevention” and 6773 “Fire Protection and Fire Equipment,” the California Occupational Safety and Health Administration has established minimum standards for fire suppression and emergency medical services. The standards include, but are not limited to, guidelines on the handling of highly combustible materials; fire hose sizing requirements; restrictions on the use of compressed air; access roads; and the testing, maintenance, and use of all fire fighting and emergency medical equipment.

Fire Codes and Guidelines The California Fire Code contains regulations relating to construction, maintenance, and use of buildings. Topics addressed in the code include fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, hazardous materials storage and use, provisions intended to protect and assist fire responders, industrial processes, and many other general and specialized fire-safety requirements for new and existing buildings and the surrounding premises. The California Fire Code contains specialized technical regulations related to fire and life safety.

All development projects in the SMFD service area are required to meet various other fire protection requirements identified in the SMFD Fire Prevention Standards. The fire code and prevention standards outline the number and distribution of fire hydrants, the minimum requirements for fire access roads and emergency gates and barriers, and the installation of traffic control devices (Opticom). In addition, SMFD requires installation of automatic fire sprinklers in all new commercial construction that exceeds 3,599 square feet and some residential properties exceeding 2,999 square feet (City of Rancho Cordova 2006a:4.12-4, SMFD 2003).

An important requirement for fire suppression is adequate fire flow, which is the amount of water, expressed in gpm, available to control a given fire and the length of time that this flow is available. The availability of sufficient water flows and pressure is a basic requirement of the California Building Standards Code. The total fire flow needed to extinguish a structural fire is based on a variety of factors, including building design, internal square footage, construction materials, dominant use, height, number of floors, and distance to adjacent buildings. Minimum requirements for available fire flow at a given building are dependent on standards set in the California Fire Code. These fire flow requirements are 1,500 gpm for low- and medium-density residential (2-hour duration), 2,500 gpm for high-density residential (3-hour duration), and 3,000 gpm for commercial/office and light industrial (3-hour duration). In addition, SMFD requires 1,000 gpm at minimum water pressure of 20 pounds per square inch (3-hour duration) for structures exceeding 3,600 square feet (City of Rancho Cordova 2006a:4.12-4).

California Integrated Waste Management Act To minimize the amount of solid waste that must be disposed of by transformation and land disposal, the California Legislature passed the CIWMA of 1989 (AB 939), effective January 1990. According to the CIWMA, all cities and counties were required to divert 25% of all solid waste from landfill facilities by January 1, 1995, and 50% by January 1, 2000. Each city is required to develop solid waste plans demonstrating integration of the CIWMA plan with the county plan. The plans must promote (in order of priority) source reduction, recycling and composting, and environmentally safe transformation and land disposal.

California Water Conservation Act The California Water Conservation Act (SBx7-7) was enacted in November 2009 and requires each urban water supplier to select one of four water conservation targets contained in California Water Code Section 10608.20 with the statewide goal of achieving a 20% reduction in urban per capita water use by 2020. Under SBx7-7, urban retail water suppliers (in this case, GSWC) are required to develop water use targets and submit a water management plan to DWR by July 2011. The plan must include the baseline daily per capita water use, water use target, interim water use target, and compliance daily per capita water use. In addition, the State will make incremental progress towards this goal by reducing per capita water use by at least 10% by December 31, 2015 (DWR 2011).

California Public Utilities Commission Decision 95-08-038 CPUC Decision 95-08-038 contains the rules for the planning and construction of new transmission facilities, distribution facilities, and substations. The decision requires permits for the construction of certain power line facilities or substations if the voltages would exceed 50 kV or if the

substation would require the acquisition of land or an increase in voltage rating above 50 kV. Distribution lines and substations with voltages less than 50 kV do not need to comply with this decision; however, the utility must obtain any nondiscretionary local permits required for the construction and operation of these projects. CEQA compliance is required for construction of facilities constructed in accordance with the decision.

California Building Energy Efficiency Standards The project would be required to comply with changes to Title 24 of the California Code of Regulations regarding energy efficiency. Title 24, which was promulgated by the CEC in 1978 in response to a legislative mandate to create uniform building codes to reduce California's energy consumption, provides energy efficiency standards for residential and nonresidential buildings. These new energy efficiency standards were developed in response to the State's energy crisis as well as AB 970 (Chapter 329, Statutes of 2000), the California Energy and Reliability Act of 2000. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The Building Energy Efficiency Standards were revised in 2008 and became effective on January 1, 2010 (CEC 2010).

Implementation of these standards is expected to reduce the growth in electricity use by 561.2 GWh per year and reduce the growth in natural gas use by 19.0 MM therms per year. The energy savings attributable to new single-family and multifamily residential buildings is 102.2 GWh per year of electricity savings and 7.4 MM therms per year of natural gas savings. The energy savings attributable to new nonresidential buildings is 151.2 GWh per year of electricity savings and 3.3 MM therms per year of natural gas savings. Additional energy savings is from the application of new outdoor lighting standards and warehouse refrigeration, which totals 37.3 GWh per year of electricity savings. Alterations to exiting nonresidential building are a substantial part of the energy savings. These savings result from retrofit insulation requirements for existing roofs and the requirement that renovated lighting systems meet the new requirements. The energy savings attributable to alterations to existing nonresidential buildings is 270.5 GWh per year of electricity savings and 8.2 MM therms per year of natural gas savings (CEC 2007).

In addition, the 2010 California Green Building Code (Part 11, Title 24) standards became effective on January 1, 2011. This code was developed to enhance the design and construction of buildings and sustainable construction practices through planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental air quality. It is the intent of this code to encourage green buildings to achieve more than a 15% reduction in energy usage when compared to existing standards, to reduce indoor potable water demand by 20%, to reduce landscape water usage by 50%, and to reduce construction waste by 50%. It also requires separate water meters for nonresidential buildings' indoor and outdoor water use, with a requirement for moisture-sensing irrigation systems for larger landscape projects, and mandatory inspections of energy systems (e.g., heat furnace, air conditioner and mechanical equipment) for nonresidential buildings over 10,000 square feet to ensure that all are working at their maximum capacity and according to their design efficiencies (CEC 2009b).

Regional and Local Plans, Policies, Regulations, and Ordinances The JOC Relocation Project is jointly proposed by Reclamation, a Federal agency, and DWR, a State agency. The Proposed Site is Federal property owned by Reclamation. A Federal agency operating on Federal land is not required to comply with regional or local plans, policies, regulations, or ordinances. However, a Federal agency normally will conform with local regulations and State laws that do not interfere with the agency's ability to "carry out the purposes of the government," such as building, health, and safety codes (*Fort Leavenworth R.R. v. Lowe*, 114 U.S. 525 [1885]).

Activities at the Proposed Site would not be required to comply with regional or local regulations, but Reclamation has committed to a "good neighbor" policy and would conform with those regulations to the extent that such compliance would not conflict with or hinder the mission and purposes of the agency or the departments located at the site. Activities at the Alternative 1 Site would take place on private property and would require full compliance with all regional and local regulations.

Sacramento County General Plan The goals, objectives, and policies from the *1993 County of Sacramento General Plan* (County General Plan) (Sacramento County 1993) related to public services and utilities that apply to the Proposed Action and alternatives under consideration are listed below:

Public Facilities Element

Goal: Safe, efficient, and environmentally sound public sewer system and treatment facility serving all urban development.

- **Objective:** Treatment plant, regional interceptors and trunk system expansion completed prior to construction in urban expansion areas and/or flows reaching critical capacity limits.
  - **Policy PF-8:** Do not permit development which would cause sewage flows into the trunk or interceptor system to exceed their capacity.
- **Objective:** Equitable fees adequate to support wastewater collection, treatment and disposal.
  - **Policy PF-15:** Support CSD-1 [now Sacramento Area Sewer District, SASD] and SRCSD [Sacramento Regional County Sanitation District] policies to fund new trunk and interceptor capital costs through connection fees for new development.
  - **Policy PF-18:** New development projects which require extension or modification of the trunk or interceptor sewer systems will be consistent with sewer facility plans and will participate in established funding mechanisms.
- **Goal:** Efficient and effective fire protection and emergency response serving existing and new development.
- **Objective:** Fire and emergency safety measures integrated into all neighborhood and building design.

- **Policy PF-61:** Require new development to install fire hydrants and associated water supply systems which meet the fire flow requirements of the appropriate fire district.

- **Policy PF 62:** New development will provide access arrangements pursuant to the requirements of the Uniform Fire Code.

- **Objective:** Equitable and adequate funding for new fire protection facilities, equipment and personnel to serve growth.

  - **Policy PF-69:** No building permit for new residential or commercial construction will be issued when there is a Board of Supervisors certified fire district financing plan for any applicable fire district, which provides for mitigation fees, until the applicant has contributed all required mitigation fees.

Conservation Element

- **Goal:** Water resources utilized with maximum feasible conservation and reuse.

- **Objective:** Water efficient landscape and design that utilizes water conservation methods and water reuse technology whenever possible.

  - **Policy CO-38:** All development projects, excluding single-family homes, will incorporate water-efficient landscaping.

  - **Policy CO-39:** Development project approvals will include a finding that all feasible and cost effective options for conservation and water reuse are incorporated into project design. Wastewater reuse options will be reviewed and agreed upon by the area water purveyor when the reclaimed water is to be used within the water purveyor's boundaries.

Sacramento County is in the process of preparing a draft *Sacramento County General Plan Update* (Sacramento County 2010) and EIR to plan for growth in the period 2010–2030. Until that EIR has been certified and the update has been adopted by the Sacramento County Board of Supervisors, the 1993 general plan remains in effect. Following receipt of a third-party review in December 2010, hearings on the general plan are began in spring 2011 and are ongoing.

City of Rancho Cordova General Plan Goals and policies of the *Rancho Cordova General Plan* (City of Rancho Cordova 2006b) related to public services and utilities that are relevant to the Proposed Action and the alternatives under consideration are listed below:

Land Use

- **Policy LU.2.7:** Promote sustainable development that reduces the impact of projects on energy, water, and transportation systems. Encourage sustainable development to occur in ways that complement the built form.

Infrastructure, Services, and Finance Element

GOAL ISF.2: Ensure the development of quality infrastructure to meet community needs at the time they are needed.

- **Policy ISF.2.1:** Ensure the development of public infrastructure that meets the long-term needs of residents and ensure infrastructure is available at the time such facilities are needed.
- **Policy ISF.2.3:** Ensure that adequate funding is available for all infrastructure and public facilities, and make certain that the cost of improvements is equitably distributed.
- **Policy ISF.2.4:** Ensure that water supply and delivery systems are available in time to meet the demand created by new development, or are guaranteed to be built by bonds or securities.
- **Policy ISF.2.6:** Ensure that sewage conveyance and treatment capacity are available in time to meet the demand created by new development, or are guaranteed to be built by bonds or other sureties.

Natural Resources Element

GOAL NR.5: Protect the quantity and quality of the city's water resources.

- **Policy NR.5.1:** Promote water conservation within existing and future urban uses.

GOAL NR.7: Reduce per Capita Energy Consumption

- **Policy NR.7.2:** Promote the development and use of advanced energy technology and building materials in Rancho Cordova.
- **Policy NR.7.3:** Encourage the development of energy efficient buildings and subdivisions.

Safety Element

GOAL S.7: Design neighborhoods and buildings in a manner that prevents crime and provides security and safety for people and property.

- **Policy S.7.1:** Use Crime Prevention through Environmental Design (CPTED) principles in the design of projects and buildings.

GOAL S.9: Reduce the probability of fire damage to all of the city's structures.

- **Policy S.9.1:** Cooperate with the Sacramento Metropolitan Fire District (SMFD) to reduce fire hazards, assist in fire suppression, and ensure efficient emergency medical response.

Rancho Cordova Landscaping Ordinance (Municipal Code Title 23, Chapter 23.716)

The City of Rancho Cordova's Landscaping Ordinance (Municipal Code Title 23,

Chapter 23.716) establishes minimum landscape standards to enhance the appearance of developments, reduce heat and glare, control soil erosion, conserve water, ensure the ongoing maintenance of landscape areas, and ensure that landscape installations do not create hazards for motorists or pedestrians. All new nonresidential, mixed-use, and single-family residential and multifamily residential subdivisions are required to comply with the landscaping requirements.

The ordinance requires all multifamily, nonresidential, and mixed-use development to install a low-pressure irrigation system in 30% of all landscaped areas; to install automatic programmable controllers with check valves in sloping areas with elevation differences of more than 5 feet as defined from the toe to the top of slope; to group landscape materials with the same watering needs together; to design irrigation systems to avoid runoff, excessive low head drainage, overspray, or other similar conditions where water flows or drifts onto adjacent property, nonirrigated areas, walks, roadways, or structures; and to post an annual maintenance program with the seasonal watering schedule in or near the control box.

3.11.2 Environmental Consequences and Mitigation Measures

Methods

Impacts on public services and utilities that would result from implementation of the Proposed Action and alternatives under consideration for the project were identified by comparing existing service capacity and facilities against future demand associated with project implementation. Evaluation of potential public services and utility impacts was based on a review of the following documents pertaining to the Proposed and Alternative 1 Sites and surrounding areas:

- *Draft Environmental Impact Report for the Rancho Cordova General Plan* (City of Rancho Cordova 2006a),
- *Rancho Cordova General Plan* (City of Rancho Cordova 2006b),
- *1993 County of Sacramento General Plan* (Sacramento County 1993),
- *Sacramento County General Plan Background to the 1993 General Plan and 2007 General Plan Update* (Sacramento County 2007),
- *Sacramento County General Plan Update Draft Environmental Impact Report* (Sacramento County 2009a),
- *2005 Urban Water Management Plan – Cordova* (GSWC 2006),
- *Sacramento Area Sewer District Sewerage Facilities Master Plan 2006 Update* (SASD 2006), and
- *Sacramento Regional Wastewater Treatment Plant 2020 Master Plan* (SRCSD 2001),

Additional information was obtained through consultation with appropriate agencies, including GSWC, SASD, SRCSD, SMUD, PG&E, and field review of the Proposed and

Alternative 1 Sites and surroundings. Where possible, a quantitative comparison was used to determine impacts of the project on future demands.

Assumptions

Where information was available, estimates of water, wastewater, electricity, and natural gas use for the Proposed Action and Alternative 1 were developed based on indications of per-capita use at the Interim JOC. Where such information was not available, per-capita demand was estimated based on overall demand information from service providers.

Criteria for Determining Significance of Effects

Determinations of significance in this EIS/EIR are based on the environmental checklist in Appendix G of the State CEQA Guidelines, as amended, and based on Appendix F as related to energy demand and consumption. These determinations are provided pursuant to CEQA. The Proposed Action and alternatives under consideration would be considered to have a significant impact related to public services and utilities if they would:

- create a need for the development of new service facilities (e.g., fire, police, schools, and other public facilities), the construction of which could result in significant environmental impacts;
- create circumstances where existing services and facilities could not meet established performance standards (i.e., response times, provider-per-resident ratios);
- substantially impede existing services;
- have insufficient water supplies available to serve the project from existing or permitted entitlements and resources, or require new or expanded entitlements;
- exceed wastewater treatment requirements of the applicable RWQCB;
- require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- result in a determination by the wastewater treatment provider that serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- generate solid waste beyond the capacity of existing landfills;
- violate Federal, State, or local statutes and regulations related to solid waste; or
- result in inefficient, wasteful, and unnecessary consumption of energy.

Issues Not Addressed Further in This EIS/EIR

Increased Demand for School Services and Facilities—The project would result in relocation of existing Reclamation and DWR employees to a new facility. It is anticipated

that any new employees hired in the future would be from the surrounding communities. Therefore, the project would not result in new land uses that would increase demand for school services and facilities and this threshold is not considered further in this EIS/EIR.

Impact Analysis

See Table 3.0-2 for a summary of impacts and mitigation measures for Alternative 2 (incorporated by reference from the Mather Field Specific Plan FEIR).

Impact 3.11-1: Possible Temporary Reduction in Emergency Response Services during Construction

No-Action
Under the No-Action Alternative, no construction activities would occur; therefore, the No-Action Alternative would not obstruct the passage of emergency vehicles on local roadways. No **direct** or **indirect impacts** would occur.

Proposed Action and Alternative 1
Implementation of either the Proposed Action or Alternative 1 would include construction activities of varying levels occurring over a 2- to 5-year period. Nearby roadways in the vicinity of the Proposed Site—such as Gold Country Boulevard—and in the vicinity of the Alternative 1 Site—such as Kilgore Road and White Rock Road—would likely be affected intermittently during construction activities (see Section 3.14, “Transportation and Circulation”). Ongoing construction activities could result in increased truck traffic and other roadway effects that could slow or stop emergency vehicles, temporarily increasing response times and impeding existing services. Potential reduction of emergency response services during construction would be considered a **direct, significant** impact. **No indirect impacts** would occur.

Mitigation Measure 3.11-1: Prepare and Implement a Construction Traffic Control Plan

No-Action
No mitigation is required.

Proposed Action and Alternative 1
Reclamation and DWR will prepare and implement traffic control plans for construction activities that may affect road rights-of-way. The traffic control plans must follow any applicable standards of the agency responsible for the affected roadway and must be approved and signed by a professional engineer. Measures typically used in traffic control plans include advertising of planned lane closures, warning signage, a flagperson to direct traffic flows when needed, and methods to ensure continued access by emergency vehicles. During project construction, access to existing land uses will be maintained at all times, with detours used as necessary during road closures. Traffic control plans will be submitted to the Sacramento County Department of Transportation (Proposed Site) or City of Rancho Cordova Public Works Department (Alternative 1 Site) for review and

approval before issuance of a building permit, where implementation may cause impacts on traffic.

Responsibility: DWR

Timing: Before issuance of a grading permit and throughout project construction

Implementing Mitigation Measure 3.11-1 would reduce temporary significant impacts associated with decreased emergency response times during construction to a **less-than-significant** level by requiring preparation and implementation of a construction traffic control plan that would provide for adequate emergency access during construction activities.

Impact 3.11-2: Increased Demand for Fire Protection Facilities and Services

No-Action
Under the No-Action Alternative, no construction activities would occur; therefore, the No-Action Alternative would not result in new land uses that would increase demand for fire protection facilities and services. No **direct** or **indirect impacts** would occur.

Proposed Action and Alternative 1
Implementation of the Proposed Action or Alternative 1 would result in increased demand for fire protection facilities and services. SMFD would provide fire protection services to the Proposed Site. First-response service would be provided by Station 32, which is located approximately 2.3 miles north of the site via Hazel Avenue.

First-response service for the Alternative 1 Site would be provided by Station 66, which is located approximately 0.1 mile north of the site via Kilgore Road.

Both Station 32 and Station 66 operate one engine company and one paramedic ambulance each, and provide a response time of 6 minutes or less more than 90% of the time (SMFD 2010a).

SMFD outlines fire prevention standards to be incorporated into new development. These standards include access arrangements, fire hydrant placement, fire flow availability and requirements, and plan submittal requirements. SMFD also requires installation of automatic fire sprinklers in all new office construction that exceeds 3,599 square feet. Because the SMFD outlines fire prevention standards to be incorporated into new development and because improvement plans have not yet been prepared that depict these requirements, impacts on fire protection facilities and services would be **direct** and **potentially significant**. **No indirect impacts** would occur.

Mitigation Measure 3.11-2: Incorporate California Fire Code and SMFD Fire Prevention Standards into Project Design and Submit Project Design to the SMFD for Review and Approval

No-Action
No mitigation is required.

Proposed Action and Alternative 1
To reduce impacts related to the provision of new fire services, Reclamation and DWR will incorporate all applicable California Fire Code and SMFD Fire Prevention Standards into their project designs and will prepare improvement plans for review and approval by the SMFD before issuance of building permits by the Sacramento County Planning and Community Development Department (Proposed Action) or the City of Rancho Cordova Building and Safety Department (Alternative 1).

Improvement plans will show fire hydrant locations and details. SMFD notes will be shown on the plans or improvement drawings. Approved fire hydrants capable of providing the required fire flow for the protection of any and all structures will be located along the route of fire apparatus access roadways as detailed in Fire Prevention Standard 441.1051. The required fire hydrants will be installed and operational prior to any construction. A letter from the Golden State Water Company will be obtained verifying that adequate water is available for fire flow.

Improvement plans will show access design as described by Fire Prevention Standard 444.302 ("Fire Apparatus Access Roads"). These plans will describe access-road length, dimensions, and finished surfaces for firefighting equipment. If security gates are installed at the project site, the project applicant will obtain a copy of the Sacramento County Fire Code, Amendment VII, "Emergency Access Gates and Barriers." The design of the entry will conform to this standard.

As required by the Rancho Cordova General Plan, new business construction will incorporate on-site fire suppression systems into project design. On-site equipment and facilities at the Alternative 1 Site would be consistent with industry standards and approved by SMFD.

Before authorizing the occupancy of any structures at either the Proposed Site or the Alternative 1 Site, Reclamation and DWR will obtain a Certificate of Release (Standard 441.105, "Certificate of Release—Residential") from SMFD verifying that all fire prevention items have been addressed on-site to the satisfaction of SMFD.

Responsibility: DWR

Timing: Before issuance of building permits and issuance of certificate of occupancy or final inspections

Implementing Mitigation Measure 3.11-2 would reduce significant impacts associated with the increased demand for fire protection facilities and services to a **less-than-significant** level by requiring that applicable California Fire Code and SMFD Fire Prevention Standards are incorporated into the project design, along with review and approval of project plans by the SMFD and the Sacramento County Planning and Community Development Department for the Proposed Site, or the City of Rancho Cordova Building and Safety Department for the Alternative 1 Site, prior to issuance of building permits, occupancy permits, or final inspections.

Impact 3.11-3: Increased Demand for Fire Flow

No-Action

Under the No-Action Alternative, no construction activities would occur; therefore, the No-Action Alternative would not result in new land uses that would require adequate available water flow for fire suppression. No **direct** or **indirect impacts** would occur.

Proposed Action and Alternative 1

The SMFD maintains oversight authority to ensure that adequate water volume and pressure are available in its service area. The total fire flow needed to extinguish a structural fire is based on a variety of factors, including building design, internal square footage, construction materials, dominant use, height, number of floors, and distance to adjacent buildings. Minimum requirements for available fire flow at a given building are dependent on standards set in the California Fire Code. The California Fire Code fire flow requirements for office development are 3,000 gpm for 3-hour duration. In addition to meeting minimum water flow requirements, all development projects are required to meet various other fire protection requirements identified in the SMFD Fire Prevention Standards. The SMFD requirements are determined for specific development projects at the design stage.

Lack of adequate fire flow would impede the ability of the SMFD to provide effective fire suppression service on the Proposed Site or Alternative 1 Site. Increased demands for fire flow would be a **direct, significant** impact. **No indirect impacts** would occur.

Mitigation Measure 3.11-3: Implement Mitigation Measure 3.11-2, "Incorporate California Fire Code and SMFD Fire Prevention Standards into Project Design and Submit Project Design to the SMFD for Review and Approval."

This mitigation measure is described above.

Implementing Mitigation Measure 3.11-2 would reduce impacts associated with increased demand for fire flow to a **less-than-significant** level because verification from the SMFD that adequate water supply is available would be obtained prior to approval of improvement plans, and project fire flow design would based on the requirements included in the California Fire Code and SMFD Fire Prevention Standards.

Impact 3.11-4: Increased Demand for Police Protection Services

No-Action
Under the No-Action Alternative, no construction activities would occur; therefore, the No-Action Alternative would not result in new land uses that would increase demand for police protection facilities and services. **No direct** or **indirect impacts** would occur.

Proposed Action and Alternative 1
Implementation of the Proposed Action or Alternative 1 would result in increased demand for police protection services. Law enforcement services in the vicinity of the Proposed Site are currently provided by the SCSD. The Proposed Site would be served by the North Division Garfield Station, located at 5510 Garfield Avenue, approximately 16.7 miles west of the Proposed Site. Law enforcement services in the vicinity of the Alternative 1 Site are currently provided by the Rancho Cordova Police Department through an agreement with the SCSD. The Alternative 1 Site would be served by the SCSD's East Division located at 10361 Rockingham Drive (at Mather Field Road), located approximately 2.4 miles southwest of the Alternative 1 Site.

On-site security is an essential requirement of the Proposed Action and Alternative 1. The Federal and State agencies occupying the existing Interim JOC each have requirements for securing their facilities. Security would be accomplished by providing 24-hour on-site security personnel, secured perimeter fencing for employees and government vehicles, and video surveillance, and by restricting vehicular access near buildings with development offset by no less than 75 feet.

Federal requirements for Reclamation's operations would be constructed to meet Federal security mandates and must include the "Homeland Security Presidential Directives Public Laws Department of the Interior Departmental Manual."

Because the Proposed Action and Alternative 1 would meet State and Federal on-site security requirements, impacts related to increased demands for police protection services would be **direct** and **less than significant**. **No indirect impacts** would occur.

Mitigation Measure: No mitigation is required.

Impact 3.11-5: Increased Demand for Water from Golden State Water Company

No-Action
Under the No-Action Alternative, no construction activities would occur; therefore, the No-Action Alternative would not result in new land uses that would increase demand for water supplies. No **direct** or **indirect impacts** would occur.

Proposed Action and Alternative 1
No public water supply facilities are on the Proposed Site or Alternative 1 Site. Water supply for the Proposed Action would be provided by GSWC through connection to existing water transmission facilities. At the Proposed Site, this connection would require construction of a water pipeline in Nimbus Road to Gold Country Boulevard. At the Alternative 1 Site, water transmission facilities would connect to an existing pipeline on Kilgore Road.

Currently, GSWC's water supply for the Cordova System consists of 5,000 afy of surface water from the American River, 4,500 afy groundwater extracted from the Central Basin, and 5,000 afy Aerojet replacement water via the Folsom South Canal. GSWC's total estimated long-term average annual supply is 14,500 afy.

Water usage for the JOC facility is anticipated by GSWC to be approximately 1,200 gallons per day (gpd) (1.3 afy) for potable uses and 20 to 50 gpd (33.5 to 82.0 afy) for landscape uses for a total water demand of 1,220 to 1,250 gpd, or 33.5 to 82.0 afy (Gisler, Ernest pers. comm. 2011). GSWC has indicated that its water system is capable of providing water service to either location; however, in regard to fire protection, GSWC would need to evaluate fire flow requirements of the Proposed Action and Alternative 1 to verify that the capacity of the water system would meet fire flow requirements. Therefore, this **direct** impact would be **potentially significant**. No **indirect impacts** would occur.

Mitigation Measure 3.11-5: Submit Written Certification from GSWC Verifying Water Supply Availability

No-Action
No mitigation is required.

Proposed Action and Alternative 1
Proposed water supplies and delivery systems will be identified at the time of project approval and before issuance of a building permit to the satisfaction of the Sacramento County Planning and Community Development Department (Proposed Site) or City of Rancho Cordova Planning Department (Alternative 1 Site). GSWC will demonstrate possession of legal entitlement to the water source and that the water source is available or reasonably foreseeable under normal, dry, and multiple dry years over a 20-year planning horizon for the amount of development proposed by the project. Such demonstration will consist of written certification from GSWC verifying the availability of a long-term, reliable water supply for the amount of development that would be authorized by the project before approval of a final map and issuance of a building permit from the Sacramento County Planning and Community Development Department or City of Rancho Cordova Planning Department.

Responsibility: DWR

Timing: Before issuance of building permits

Implementing Mitigation Measure 3.11-5 would reduce potentially significant impacts associated with increased demand for water supplies under the Proposed Action and Alternative 1 to a **less-than-significant** level because written certification would be provided by GSWC verifying a long-term, reliable water supply is available to serve the Proposed Action or Alternative 1 or that needed improvements would be in place before issuance of a building permit.

Impact 3.11-6: Increased Demand for SASD Wastewater Collection and Conveyance Facilities

No-Action

Under the No-Action Alternative, no construction activities would occur; therefore, the No-Action Alternative would not result in new land uses that would increase demand for wastewater collection and conveyance facilities. No **direct** or **indirect impacts** would occur.

Proposed Action and Alternative 1

Neither the Proposed Site nor the Alternative 1 Site is presently served by municipal wastewater collection and treatment systems and, therefore, both the Proposed Action and Alternative 1 would require construction of on-site wastewater collection and conveyance facilities.

Within the vicinity of the Proposed Site, an 8-inch trunk sewer pipeline is located along Tributary Crossing Drive and Gold Country Boulevard south of the Proposed Site. SASD has indicated that these sewer pipelines have adequate capacity to serve the Proposed Site. However, an on-site pump station may be required to convey flows from the Proposed Site to the sewer pipeline in Gold Country Boulevard at the intersection of Tributary Crossing Drive and Gold Country Boulevard (Khan, pers. comm., 2011).

Near the Alternative 1 Site, an 8-inch trunk sewer pipeline is located in Kilgore Road. SASD had indicated this sewer pipeline has adequate capacity to serve the Alternative 1 Site and anticipates that Alternative 1 would connect with the sewer pipeline in Kilgore Road (Khan, pers. comm., 2011).

All wastewater generated by the Proposed Action or Alternative 1 would be conveyed by SASD's off-site wastewater facilities for treatment at the SRWTP (see Impact 3.12-7 below).

The sizing and design of on-site sewer pipes for both the Proposed Action and Alternative 1 would be based on the *SASD Sewerage Facilities Expansion Master Plan Update* (2006) and the SASD 2009 Design Standards or the most current versions of these plans. However, an on-site sewer system has not yet been designed, nor have final design plans and specifications been submitted for either the Proposed Action or Alternative 1; therefore, the adequacy of the systems cannot be determined and this impact would be **direct** and **potentially significant**. The **indirect** physical impacts of constructing these facilities are

addressed throughout this draft EIS/EIR in connection with discussions of the impacts of overall site development.

Mitigation Measure 3.11-6: Prepare Sewer Study Showing Adequacy of On-Site and Off-Site SASD Wastewater Collection and Conveyance Facilities to Serve the Project

No-Action
No mitigation is required.

Proposed Action and Alternative 1
Before a building permit is issued, DWR will prepare a detailed sewer study in conjunction with other site-specific improvement plans. Proposed on-site wastewater collection and conveyance facilities will be sized to accommodate planned wastewater flows, based on SASD design and construction standards identified in the *SASD Sewerage Facilities Expansion Master Plan Update* (2006) and the SASD 2009 Design Standards or the most current versions of these plans.

Sewer facility improvement plans and specifications will be submitted to SASD after approval of the sewer study. Approved sewer facility improvement plans and specifications will be signed by SASD.

DWR will submit written verification to the Sacramento County Public Works Department (Proposed Site) or the City of Rancho Cordova Public Works Department (Alternative 1 Site) that sewer facility improvement plans and specifications have been approved by SASD, showing that sufficient wastewater conveyance infrastructure to provide adequate service to the project has been designed before issuance of a building permit. DWR will pay all connection and capacity fees as negotiated with SASD.

Responsibility: DWR

Timing: Before issuance of building permits

Implementing Mitigation Measure 3.11-6 would reduce potentially significant impacts associated with increased demand for wastewater collection and conveyance facilities under the Proposed Action and Alternative 1 to a **less-than-significant** level because the adequacy of designed wastewater conveyance and connection facilities to serve the Proposed and Alternative 1 Sites would be documented before issuance of a building permit.

Impact 3.11-7: Increased Demand for SRWTP Wastewater Treatment Plant Facilities

No-Action
Under the No-Action Alternative, no construction activities would occur; therefore, the No-Action Alternative would not result in new land uses that would

increase demand for wastewater treatment facilities. **No direct** or **indirect impacts** would occur.

Proposed Action and Alternative 1
Based on SASD land use categories, both the Proposed Action and Alternative 1 are considered office land uses. The assumed density for this category would be six ESDs per gross acre with an average dry-weather flow of 310 gallons per day per ESD (CSD-1 2006: 2-10). Implementation of the Proposed Action would generate 0.03 mgd of average dry-weather flow within the SASD service area.

Collected wastewater flows from the Proposed Site or the Alternative 1 Site would ultimately be transported to the SRWTP for treatment and disposal. The SRWTP receives and treats an average of 150 mgd (as of 2010) and has a permitted dry-weather flow design capacity of 181 mgd (SRCSD 2010). The 2020 Master Plan, which was approved in 2004, provides for expansion of the SRWTP to 218 mgd based on growth rates expected to be achieved in the Sacramento County region by 2020. Note that this total does not represent a buildout population total for SRCSD; rather, it represents the amount of growth expected within SRCSD based on projections.

SRCSD has determined that growth within the district is less than what was projected in the 2020 master plan and the SRWTP can provide capacity to future development beyond what was originally anticipated (SRCSD 2010). If substantial population growth or new development occurs before 2020, SRCSD will reevaluate expansion needs and phase treatment plant expansion to provide for sufficient long-term capacity.

Because the SRWTP is planned to accommodate growth in the Sacramento regional area by 2020, implementation of the Proposed Action would be accommodated by planned SRWTP capacity. Therefore, **direct** impacts would be **less than significant**. **No indirect impacts** would occur.

Mitigation Measure: No mitigation is required.

Impact 3.11-8: Temporary, Short-Term Generation of Solid Waste during Project Construction

No-Action
Under the No-Action Alternative, no construction activities would occur; therefore, the No-Action Alternative would not generate short-term construction-related solid waste. **No direct** or **indirect impacts** would occur.

Proposed Action and Alternative 1
Two different construction scenarios are being considered. In the first scenario the JOC would be constructed during a 2-year window, requiring approximately 64 workers for this 2-year timeframe. Under the second scenario approximately 32 workers would construct the JOC during a 5-year window (2 years of construction with a 1-year break and then another 2 years of construction).

CIWMB estimates that construction activities generate 3.0 tons per employee per year of solid waste. Under the first construction scenario, 192 tons of waste per year (3.0 x 64) or 0.5 tpd would be generated by construction activities. Under the second construction scenario, 96 tons of waste per year (3.0 x 32) or 0.3 tpd would be generated by construction activities. Therefore, between 96 and 192tons of waste per year or between 0.3 and 0.5 tpd would be generated by construction activities.

Solid waste generated by construction activities on the Proposed Site or Alternative 1 Site would be disposed of at the Kiefer Landfill. The landfill is permitted to accept 10,800 maximum tpd of solid waste with an average intake of 6,000 tpd. The estimated 0.3 to 0.5 tpd of solid waste generated by construction activities would be less than 1% of the 10,800 maximum tpd that could be received at the landfill. The landfill has a total capacity of 117 million cubic yards, and a remaining capacity of 113 million cubic yards. Currently, the landfill has an estimated closure date of 2064.

In addition, the Proposed Action would be required to comply with the County's Construction and Demolition Ordinance (Title 6, Chapter 6.20). Contractors are required to document types of building materials and estimated quantities on a "Waste Management Plan" before obtaining building permits; within 30 days of project completion contractors must complete the "Waste Management Plan" to document the actual quantity of construction or demolition waste generated and demonstrate the actual quantities recycled, salvaged or reused, and/or disposed.

Because the Kiefer Landfill has sufficient permitted capacity to accommodate temporary, short-term construction-related disposal needs for the Proposed Action or Alternative 1, and because both the Proposed Action and Alternative 1 would comply with the County's Construction and Demolition Ordinance, this **direct** impact would be **less than significant**. **No indirect impacts** would occur.

Mitigation Measure: No mitigation is required.

Impact 3.11-9: Increased Long-Term Generation of Solid Waste

No-Action
Under the No-Action Alternative, no construction activities would occur; therefore, the No-Action Alternative would not result in new land uses that would increase the long-term solid waste generation. No **direct** or **indirect impacts** would occur.

Proposed Action and Alternative 1
It is assumed by CIWMB that businesses of a certain type dispose similar wastes at similar rates (per employee) regardless of the location or size of the business. The project would be designated by CIWMB as professional services and business waste disposal rates calculated by CIWMB for profession services average 1.2 ton per employee per year. Approximately 600 employees would be

located at either the Proposed Site or the Alternative 1 Site. An average business waste disposal rate of 1.2 tons per employee per year results in generation of 720 tons of waste per year (1.2 tons multiplied by 600) or 1.9 tpd.

As described above, solid waste collected from the Proposed Site or Alternative 1 Site would be hauled to the Kiefer Landfill, which is permitted to accept 10,800 maximum tpd of solid waste. The estimated 1.9 tpd of solid waste generated by the Proposed Action or Alternative 1 would be less than 1% of the 10,800 maximum tpd that could be received at the landfill. In addition, compliance with all Federal, State, and local statutes and regulations related to solid-waste reduction and recycling—including, in the case of Alternative 1, the City of Rancho Cordova's Business and Multi-Family Recycling Ordinance—would reduce the volume of solid waste entering Kiefer Landfill. Therefore, this landfill has sufficient permitted capacity to accommodate solid-waste disposal needs for the Proposed Action or Alternative 1 and this **direct** impact would be **less than significant**. **No indirect impacts** would occur.

Mitigation Measure: No mitigation is required.

Impact 3.11-10: Increased Demand for Electricity and Infrastructure

No-Action
Under the No-Action Alternative, no construction activities would occur; therefore, the No-Action Alternative would not result in new land uses that would increase the demand for electricity and infrastructure. **No direct** or **indirect impacts** would occur.

Proposed Action and Alternative 1
Implementation of the Proposed Action or Alternative 1 would increase electrical demand on the Proposed or Alternative 1 Sites. Electrical service would be provided by SMUD through 473 miles of transmission lines (110 kV or more) and 9,784 miles of distribution lines (typically 12 kV). In 2009, SMUD generated approximately 10,595 GWh of electricity within its service area and SMUD anticipates electrical demand will increase to 11,504 GWh by 2015 (CEC 2011a). At buildout, the Proposed Action would increase electrical demand in the SMUD service area by 4.5 GWh per year, which would account for less than 1% of the future total electrical demand in the SMUD service area. Therefore, the increase in demand for electricity would not be substantial in relation to electrical consumption in SMUD's service area.

In the vicinity of the Proposed Site, electrical transmission lines are located within the Nimbus Fish Hatchery, north of the site. The Nimbus Dam hydroelectric facility also provides power to Western Area Power Administration for distribution. In the vicinity of the Alternative 1 Site, electrical transmission lines are located within Kilgore Road. SMUD would provide electrical service to the sites through extensions of these existing service lines with the ultimate size and configuration to be approved by SMUD. As part of the project approval process,

Reclamation and DWR would coordinate with SMUD regarding the extension and locations of on-site infrastructure. Electrical facilities would be designed and constructed in accordance with SMUD's Standards and Rules and Regulations, County (Proposed Site) or City (Alternative 1 Site) requirements, and applicable requirements of the California Building Standard Code. The on-site service lines would be sized to meet the project demands, and public utility easements would be dedicated for all underground facilities.

Because SMUD would meet the electrical demands of the Proposed Action or Alternative 1 and provide new electrical infrastructure to the Proposed or Alternative 1 Sites, this **direct** impact would be **less than significant**. The **indirect** physical impacts of constructing on-site electrical infrastructure are addressed throughout this draft EIS/EIR in connection with discussions of the impacts of overall site development.

Mitigation Measure: No mitigation is required.

Impact 3.11-11: Increased Demand for Natural Gas and Infrastructure

No-Action
Under the No-Action Alternative, no construction activities would occur; therefore, the No-Action Alternative would not result in new land uses that would increase the demand for natural gas and infrastructure. **No direct** or **indirect impacts** would occur.

Proposed Action and Alternative 1
Implementation of the Proposed Action or Alternative 1 would increase natural gas demand on the Proposed Site or Alternative 1 Site. Natural gas service would be provided by PG&E through portions of PG&E's 46,000 miles of natural gas distribution pipelines. In 2009, In 2009, PG&E delivered approximately 4,572 MM therms of natural gas throughout its service area and PG&E anticipates natural gas consumption will decrease to 4,388 MM therms by 2015 (CEC 2011b). At buildout, the Proposed Action would increase natural gas demands by 0.05 MM therms in the PG&E service area, which would account for less than 1% of the total natural gas deliveries in its service area. This is not considered a substantial increase in demand, and PG&E would have sufficient natural gas supplies to meet the demands of the Proposed Action or Alternative 1.

PG&E does not currently have gas service infrastructure on the Proposed Site or Alternative 1 Site. In the vicinity of the Proposed Site, PG&E natural gas mains are located within the Nimbus Fish Hatchery, north of the site. In the vicinity of the Alternative 1 Site, PG&E natural gas mains are located in Kilgore Road. PG&E would provide natural gas service to the Proposed Site through extensions of these existing service lines with the ultimate size and configuration to be approved by PG&E. The on-site service lines would be sized to meet the project demands, and appropriate easements would be dedicated for all underground facilities. As part of the project approval process, Reclamation and DWR would

coordinate with PG&E regarding the extension and locations of on-site infrastructure.

Because PG&E would provide natural gas and associated infrastructure to the Proposed or Alternative 1 Sites under the Proposed Action or Alternative, respectively, this impact would be **direct** and **less than significant**. The **indirect** physical impacts of constructing on-site natural gas infrastructure are addressed throughout this draft EIS/EIR in connection with discussions of the impacts of overall site development.

Mitigation Measure: No mitigation is required.

Impact 3.11-12: Increased Demand for Communications Service and Infrastructure

No-Action
Under the No-Action Alternative, no construction activities would occur; therefore, the No-Action Alternative would not result in new land uses that would increase the demand for communications service and infrastructure. No **direct** or **indirect impacts** would occur.

Proposed Action and Alternative 1
Currently, there is no existing communications infrastructure within the Proposed Site or Alternative 1 Site; AT&T would provide communications service and associated infrastructure to the sites. Existing telephone lines near the Proposed Site are located within the Nimbus Fish Hatchery. Radio and data facilities are also provided at the fish hatchery and dam. Existing telephone lines near the Alternative 1 Site are located in Kilgore Road. AT&T would augment the existing facilities, as necessary, in the project vicinity and extend service into the Proposed Site (Proposed Action) or Alternative 1 Site (Alternative 1). The location of this infrastructure would be identified in the final project design as part of the project approval process. Reclamation and DWR would coordinate with AT&T regarding the extension and locations of on-site infrastructure. All new on-site infrastructure would be installed in compliance with the standards of AT&T and Sacramento County (Proposed Site) or City (Alternative 1 Site). Therefore, this impact would be **direct** and **less than significant**. The **indirect** physical impacts of constructing on-site communications infrastructure are addressed throughout this draft EIS/EIR in connection with discussions of the impacts of overall site development.

Mitigation Measure: No mitigation is required.

Impact 3.11-13: Increased Energy Demand and Consumption

No-Action
Under the No-Action Alternative, no construction activities would occur; therefore, the No-Action Alternative would not result in new land uses that would increase energy demand and consumption. **No direct** or **indirect impacts** would occur.

Proposed Action and Alternative 1

Implementation of the Proposed Action or Alternative 1 would increase the consumption of energy for the duration of the project's construction and operation in the form of electricity, natural gas, and petroleum products. The primary energy demands during construction would be associated with construction vehicle fueling over the 2-year construction period. Energy in the form of fuel and electricity would be consumed during this period by construction vehicles and equipment operating on the site, trucks delivering equipment and supplies to the site, and construction workers driving to and from the site. There are no unusual project characteristics that would necessitate the use of construction equipment that would be less energy-efficient than at comparable construction sites in other parts of the Sacramento region. Therefore, it is expected that construction fuel consumption associated with the Proposed Action or Alternative 1would not be any more inefficient, wasteful, or unnecessary than at other construction sites in the region.

Energy would also be used for project operation related to heating and cooling systems, lighting, and other miscellaneous energy requirements. The project would comply with Building Energy Efficiency Standards included in Title 24 of the California Code of Regulations, including the 2010 California Green Building Code (Part 11 of Title 24). This code was developed to enhance the design and construction of buildings and sustainable construction practices through planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental air quality. It is the intent of this code to encourage green buildings to achieve more than a 15% reduction in energy usage when compared to existing standards.

DWR also plans to design, construct, and equip the office complex with proven energy-efficiency measures, materials, and devices that are feasible and cost effective. One of the objectives of the project is achieve a minimum of the Leadership in Energy and Environmental Design (LEED®) Silver Rating. While there are various strategies that can be used to achieve LEED Silver, the project would incorporate measures that increase energy efficiency and conserve water resources.

Energy consumption would also be associated with vehicle trips resulting from workers commuting to and from either the Proposed Site or Alternative 1 Site. The State encourages use of alternative transportation through an existing incentive program for State workers to use public transit or alternative-commute modes, which would be implemented at either the Proposed Site or Alternative 1 Site. The program includes transit-pass subsidies for employees; preferential parking for carpools and vanpools; ride-share programs; bicycle storage; showers; and locker facilities. Both the Proposed and Alternative 1 Sites are located less than 1 mile from the Sacramento Regional Transit light rail station located just east of Hazel Avenue on Folsom Boulevard. In addition, the sites are directly adjacent to two bike trails that connect the project to downtown Sacramento, Folsom, and south Sacramento. The Jedediah Smith Memorial Bike Trail passes

adjacent to the north of the Proposed Site property line. Near the Alternative 1 Site, the Folsom South Canal has a 14-mile-long trail that connects to the Jedediah Smith Memorial Bike Trail at Lake Natomas (East Hazel Avenue) and runs south to Sloughhouse Road, south of Sunrise Boulevard and Grant Line Road.

Because both the Proposed Action or Alternative 1 would incorporate the design measures described above, comply with Building Energy Efficiency Standards (Title 24 of the California Code of Regulations), achieve a LEED Silver Rating, and encourage alternative modes of transportation, neither would be expected to cause the inefficient, wasteful, or unnecessary consumption of energy, and this **direct** impact is considered **less than significant**. The **indirect** impacts associated with consumption of energy are analyzed in Section 3.2, "Air Quality," Section 3.4, "Climate Change and Greenhouse Gas Emissions," and Section 3.14, "Transportation and Circulation."

Mitigation Measure: No mitigation is required.

Residual Significant Impacts

Impacts associated with increased demand for SRWTP facilities—including increased temporary and short-term and long-term generation of solid waste; and increased demands for electrical, natural gas, and communications service and infrastructure—are considered less than significant. Potentially significant impacts related to the increased demand for water from GSWC would be reduced to a less-than-significant level through obtaining written certification from GSWC verifying reliable water supply is available or that needed improvements would be in place. Potentially significant impacts related to the increased demand for SASD wastewater collection and conveyance facilities would be reduced to a less-than-significant level through preparation and approval of a sewer study and improvement plans and specifications. Therefore, no residual significant impacts would occur related to utilities.

Impacts associated with increased demands for police protection services are considered less than significant. Impacts related to temporary reductions in emergency services during construction would be reduced to a less-than-significant level through the preparation and implementation of a construction traffic control plan, and increased demands for fire protection facilities and services, including adequate water pressure for fire flow, would be reduced to a less-than-significant level through the incorporation of California Fire Code and SMFD Fire Prevention Standards into project design. Therefore, no residual significant impacts would occur related to public services.

3.11.3 Cumulative Impacts

Future development in Sacramento County would increase the demand for public services and utilities in the region. In terms of cumulative impacts, the appropriate service providers are responsible for ensuring adequate provision of public services and utilities within their jurisdictional boundaries. The necessary utilities would be provided to the Proposed and Alternative 1 Sites by SASD, SRWTP, Kiefer Landfill, SMUD, PG&E, and AT&T. Fire protection services would be provided to the Proposed and

Alternative 1 Sites by SMFD. Law enforcement services would be provided to the Proposed and Alternative 1 Sites by SCSD and Rancho Cordova Police Department, respectively. The related projects within the unincorporated portion of Sacramento County and city of Rancho Cordova would rely on similar service providers.

Water Supply

Water supplies would be provided to the Proposed and Alternative 1 Sites by GSWC. Currently, GSWC's water supply for the Cordova System consists of 5,000 afy of surface water from the American River, 4,500 afy of groundwater extracted from the Central Basin, and 5,000 afy of Aerojet replacement water via the Folsom South Canal. GSWC's total estimated long-term average annual supply is 14,500 afy.

Water usage for the JOC facility is anticipated GSWC to be approximately 1,200 gpd (1.3 afy) for potable uses and 20 to 50 gpd (33.5 to 82.0 afy) for landscape uses for a total of 1,220 to 1,250 gpd, or 33.5 to 82.0 afy (Gisler, Ernest pers. comm. 2011). Implementing Mitigation Measure 3.12-5 would reduce potentially significant impacts regarding water supply requirements to a less-than-significant level because written certification would be provided by GSWC confirming that a long-term, reliable water supply is available to serve the Proposed Action or Alternative 1, or that needed improvements would be in place before issuance of a building permit.

Projections of the existing and projected future water demands within GSWC's service area were calculated for the years 2005 through 2030 in 5-year increments in the GSWC's *2005 Urban Water Management Plan*. The 2005 Urban Water Management Plan, which includes the project and the related projects, determined that existing and future water supplies would meet projected water demands within its service area through 2030. Therefore, implementing the project and the related projects would not result in a cumulatively considerable incremental contribution to a significant cumulative impact on GSWC water supplies.

Wastewater Collection and Conveyance Facilities

Under the Proposed Action or Alternative 1, new on-site sewer pipelines would be constructed and connected with existing SASD sewer pipelines that have available capacity. An on-site sewer system has not yet been designed, nor have final design plans and specifications been submitted; therefore, the adequacy of the system cannot be determined. Implementation of Mitigation Measure 3.12-6 would reduce potentially significant impacts associated with increased demand for wastewater collection and conveyance facilities to a less-than-significant level because the adequacy of designed wastewater conveyance and connection facilities to serve the Proposed and Alternative 1 Sites would be documented before the issuance of a building permit.

SASD has indicated that these sewer pipelines in the vicinity of the Proposed and Alternative 1 Site have adequate capacity to serve the Proposed Action and Alternative 1 in addition to existing and planned development within its service area (Khan, pers. comm., 2011). Therefore, implementing the project and the related projects would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to wastewater collection and conveyance facilities.

Wastewater Treatment Facilities

Wastewater generated by the Proposed Action and Alternative 1 would ultimately be transported to the SRWTP. The SRWTP receives and treats an average of 150 mgd (as of 2010) and has a permitted dry-weather flow design capacity of 181 mgd (SRCSD 2010). The 2020 Master Plan, which was approved in 2004, provides for expansion of the SRWTP to 218 mgd, based on growth rates expected to be achieved in the Sacramento County region by 2020. SRCSD has determined that growth within the district is less than what was projected in the 2020 Master Plan and the SRWTP can provide capacity to future development beyond what was originally anticipated (SRCSD 2010). If substantial population growth or new development occurs before 2020, SRCSD will reevaluate expansion needs and phase treatment plant expansion to provide for sufficient long-term capacity.

The wastewater flows generated in the SRCSD service area, which include the project and related projects, have been planned for in the SRCSD Master Plan 2000. Implementation of the Proposed Action and Alternative 1 would generate 0.03 mgd of average dry-weather flow and would be less than 1% of the currently available capacity and future planned capacity. Because the SRWTP is planned to accommodate growth in Sacramento region by 2020, implementation of the project and the related projects would be accommodated by planned SRWTP capacity. The project-related impact from increased demand for SRWTP facilities would be less than significant and implementation of the project would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to wastewater treatment plant facilities.

Solid Waste

Operation of the project would incrementally increase generation of solid waste until buildout between the years of 2015 and 2017. The Proposed Action or Alternative 1 would generate approximately 1.9 tpd of solid waste for disposal at Kiefer Landfill. The landfill is permitted to accept 10,800 maximum tpd of solid waste and the project would contribute less than 1% of the maximum tpd that could be received at the landfill. The related projects vary in size and have different amounts of residential and commercial development (which have different solid waste generation rates), and therefore also would be expected to increase the generation of solid waste within the Kiefer Landfill service area. The total increase is unknown, but is anticipated to be several hundred tons per day. Currently, Kiefer Landfill is operating below permitted capacity, and the anticipated closure date is 2064 (CIWMB 2011c). Because the Kiefer Landfill has adequate capacity to serve the project and the related projects in its service area, the project-related impact from increased generation of solid waste would be less than significant and implementation of the project would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to solid waste.

Electricity

The project and cumulative development of related projects in the area would increase the demand for electricity and infrastructure. SMUD provides electrical service for Sacramento County and would provide natural gas service for the project and related

projects within its service area. In 2009, SMUD generated approximately 10,595 GWh of electricity within its service area and SMUD anticipates electrical demand will increase to 11,504 GWh by 2015 (CEC 2011a). After the completion of construction, the Proposed Action or Alternative 1 would increase electrical demand in the SMUD service area by 4.5 GWh per year, which would account for less than 1% of the future total electrical demand in the SMUD service area (10,595 GWh). The related projects vary in size, and therefore also would be expected to increase the demand for electricity and infrastructure within SMUD's service area. Based on the percentage of total regional electrical demand estimated by CEC through 2015, it is anticipated that SMUD would have the capacity to provide service to the related projects as well. The increase in demand for electricity would not be substantial in relation to existing electrical consumption in SMUD's service area and SMUD would meet the electrical demands of the project. The project-related impact from increased demand for electrical service would be less than significant and implementation of the project would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to increased demand for electrical service.

Natural Gas

The project and cumulative development of related projects in the area would increase the demand for natural gas and infrastructure. PG&E is the natural gas supplier for Sacramento County and would provide natural gas service for the project and related projects within its service area. In 2009, PG&E delivered approximately 4,572 MM therms of natural gas throughout its service area (CEC 2011b). Of this total, Sacramento County received 315 MM therms, which accounted for 0.07% of the natural gas deliveries within the PG&E service area. CEC predicts that natural gas consumption between 2009 and 2020 will decrease with the continued implementation of energy conservation measures (Table 3.12-5).

After the completion of construction, the Proposed Action or Alternative 1 would increase natural gas demands by 0.05 MM therms in the PG&E service area, which would account for less than 1% of the total natural gas deliveries in Sacramento County (315 MM therms) and PG&E's service area (4,572 MM therms) as a whole. The related projects vary in size, and therefore also would be expected to increase the demand for natural gas and infrastructure within PG&E's service area. Based on the percentage of total regional demand estimated by CEC through 2020, it is anticipated that PG&E would have the capacity to provide service to the related projects as well. The project-related impact from increase in demand for natural gas would not be substantial in relation to existing natural gas consumption in PG&E's service area. The project-related impact from increased demand for natural gas would be less than significant and implementation of the project would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to increased demand for natural gas.

Communications

AT&T would provide communications service and associated infrastructure for the project and would extend its existing infrastructure and the related projects through existing infrastructure in the vicinity of the Proposed or Alternative 1 Site. AT&T would extend this infrastructure to the Proposed or Alternative 1 Site and the related projects to

provide the necessary communications services without affecting service to its existing customers. The project-related impact from increased demand for communications services would be less than significant and, and it is anticipated that impacts from the related projects would also be less than significant, because AT&T has the capacity to install lines that would carry its communication signals. Therefore, related projects and other development in the region are not considered to result in a cumulatively considerable impact related to communications, and the project would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to increased demand for communications services.

Public Services

Significant project-specific impacts associated with the potential to impede the provision of emergency services during construction and potentially significant impacts related to the increased demand for fire protection services and facilities and adequate water pressure for fire flow would be reduced to less-than-significant levels through the implementation of the mitigation measures identified above.

Future development in Sacramento County and the city of Rancho Cordova would incrementally increase the demand for public services. In terms of cumulative impacts, appropriate service providers are responsible for ensuring adequate provision of public services within their jurisdictional boundaries. At this time, it is unknown whether sufficient fire and police facilities and other public services are planned to serve the related projects in the unincorporated portion of Sacramento County and the city of Rancho Cordova. While some of the related projects include proposals for the construction of service facilities, others do not. However, it is clear that sufficient fire stations and police facilities would need to be constructed to serve the related projects.

Although a cumulative shortage of public services and facilities would not represent a significant environmental impact under CEQA because it does not constitute a physical impact on the environment, such a shortage would lead to a need to develop additional public services and facilities, which could lead to significant construction- and operation-related physical impacts on the environment. It is assumed that the development of the related projects, and/or development of the additional public services and facilities required to serve them, would be preceded by the required CEQA review. However, conducting the required CEQA review of the related projects would not necessarily guarantee that significant environmental effects associated with construction of new fire stations, police facilities, and other public services would not occur. Therefore, the related projects could result in significant cumulative environmental indirect impacts associated with the development of new fire stations, police facilities, and other public services associated with related projects in the area could result in a significant cumulative impact on public services. However, because sufficient fire and police facilities are available to served the project, the Proposed Action and Alternative 1 would not result in a cumulatively considerable incremental contribution to this significant cumulative impact.

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3.12 Recreation

This section addresses recreational resources near the project sites at a local and regional level. Recreational resources include active recreation resources such as multiuse trails, paseos, greenbelts, and parkways and passive recreation resources such as wildlife viewing, picnicking, and bird-watching. The analysis describes impacts, including cumulative impacts, which would occur as a result of implementing the proposed project.

3.12.1 Affected Environment

Environmental Setting

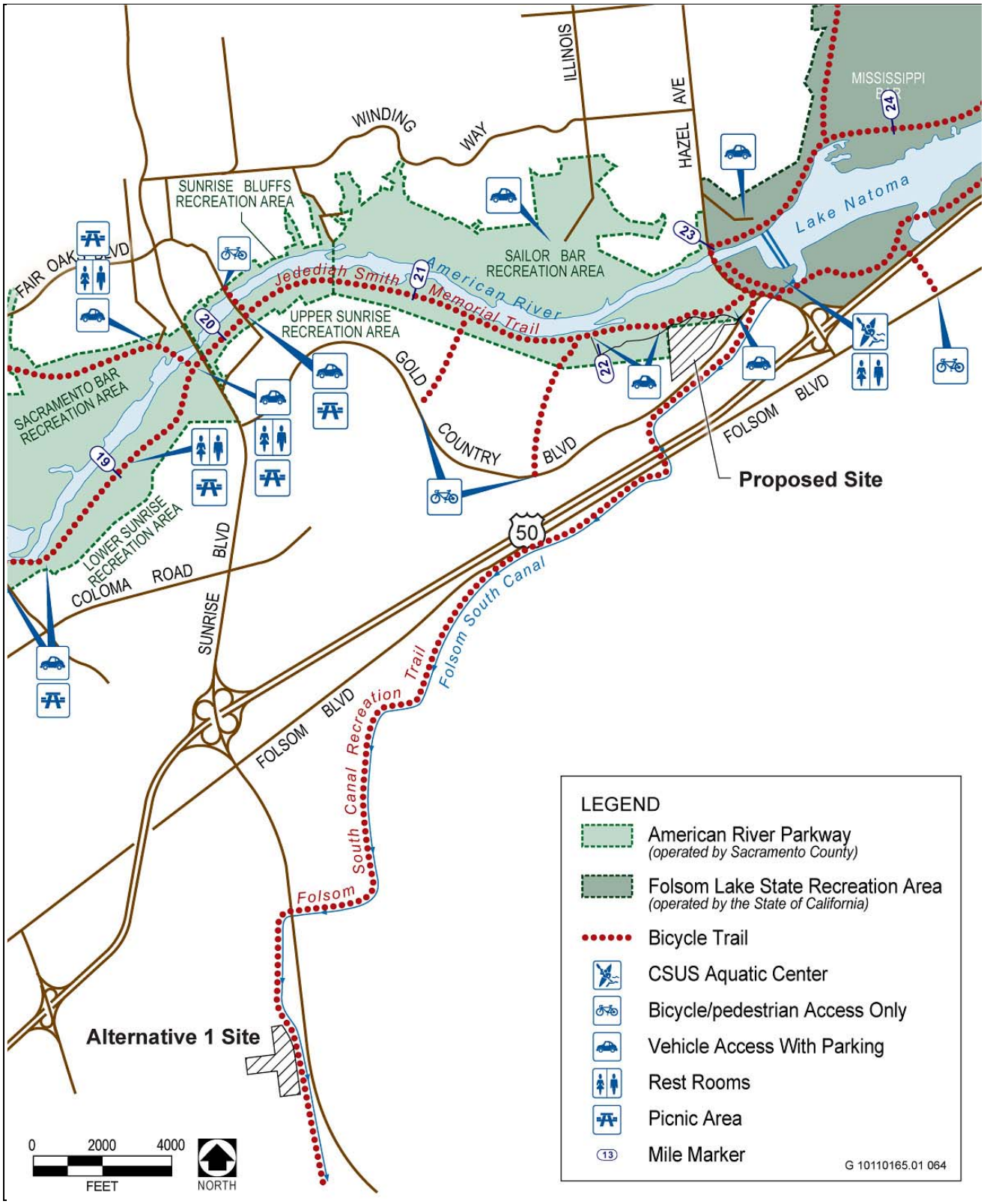
Regional Environment
A number of State and local agencies manage the recreational areas and facilities near the Proposed Site. These recreational areas and facilities are described in this section.

Folsom Lake State Recreation Area Folsom Lake State Recreation Area (SRA) is managed by the State under an agreement with Reclamation, which operates the dams (Folsom and Nimbus) and administers the federally owned land surrounding Folsom Lake and Lake Natoma). The Folsom Lake SRA is located approximately 0.4 mile northeast of the Proposed Site and approximately 4 miles northeast of the Alternative 1 Site. The Folsom Lake SRA serves the greater Sacramento area for recreation in the form of camping, hiking, fishing, biking, boating, and other outdoor recreation activities. The portion of Folsom Lake SRA closest to the Proposed Site is referred to as the Nimbus Dam Recreation Area, which is situated along the southern portion of Lake Natoma. Lake Natoma is downstream from Folsom Dam (within the Folsom Lake SRA), between the Folsom and Nimbus Dams. Recreational opportunities include use of undeveloped shorelines (Nimbus Flat and Mississippi Bar) and the developed recreation facilities at California State University Sacramento (CSUS) Aquatic Center on Lake Natoma.

The Folsom Lake SRA, including Folsom Lake and Lake Natoma, is one of the most heavily used recreational facilities in the California State Park system, with 2 to 3 million visitor days per year. Approximately 75% of the annual visitations to the Folsom Lake SRA occur during the spring and summer, and many (85%) of the Folsom Lake SRA activities are water dependent (California State Parks and Reclamation 2003:RR-1). Visitors to Nimbus Flat were estimated to be 38,801 in 2000, or approximately 2.5% of overall visitation at the Folsom Lake SRA (California State Parks and Reclamation 2003: RR-2).

American River Parkway Sacramento County Regional Parks (SCRP) was established in 1959 with acquisition of land now known as the American River Parkway (Parkway). The Proposed Site is located adjacent to the Parkway, as described below.

The Parkway is a river corridor/open space greenbelt that extends 23 miles along the American River from the confluence with the Sacramento River to just west of Hazel Avenue (Exhibit 3.12-1). The Parkway is one of the most valuable recreation/open



Source: Sacramento County 2008

Exhibit 3.12-1: Existing and Proposed Park and Recreation Facility Locations

space assets in the region. It is a unique natural environment managed by SCRP. Recreational opportunities are primarily passive types of recreation (e.g., nature study, bird-watching, picnicking) and using the trail system on bike, horse, or foot.

The Parkway's trail system is designated a "National Recreation Trail" under the National Trail System Act of 1968 (Public Law 90-543)[1] and includes portions of the Jedediah Smith Memorial Trail. The 32-mile-long multiuse (pedestrian, equestrian, and bicycle) Jedediah Smith Memorial Trail parallels the American River from Folsom Lake to downtown Sacramento. Numerous trails divert from the Parkway to connect with urban areas, including the cities of Sacramento, Rancho Cordova, Carmichael, and Folsom. In addition to the trail, additional amenities along the trail include parking, restrooms, drinking fountains, picnic benches, and camp sites. The Jedediah Smith Memorial Trail passes by the Proposed Site, where it runs along the American River and connects to a paved bike trail along the Folsom South Canal (i.e., Folsom South Canal Recreation Trail) (City of Rancho Cordova 2010). There are several points of entry into the Parkway. Near the Proposed Site, the closest access point to the Parkway is via the Jedediah Smith Memorial Trail located adjacent to the Proposed Site along Hazel Avenue within the Upper Sunrise Area. While the Folsom South Canal Recreation Trail connects to the Jedediah Smith Memorial Trail at the same location, the closest Parkway entry point to the Alternative 1 Site is located approximately 3 miles north at the Lower Sunrise Recreation Area.

The Parkway Plan includes a map of the "Upper Sunrise" section of the Parkway, which depicts two of Reclamation's parcels within the Parkway boundary and also clearly shows a third Reclamation-owned parcel, discussed in this EIS/EIR as the Proposed Site, outside of the Parkway boundary. The Sacramento County assessor's map clearly lists the United States of America as the owner of these three parcels. While Reclamation did not participate in preparation of the Parkway Plan, the plan states that Federal land managers to administer their areas consistent with the Parkway Plan. Reclamation has been contributing to the Parkway Plan with recreation improvements that include bike trail improvements, the Aquatic Center, and the marina on these Federal lands.

Folsom South Canal Recreation Trail The Folsom South Canal Recreation Trail travels from the Jedediah Smith Memorial Trail to Sloughhouse Road along the Folsom South Canal, which is a Federal facility administered by Reclamation. This paved trail is used for bicycling and hiking and is managed by Reclamation. Entry points to the trail are provided from any road that crosses the canal.

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[1] The act authorized creation of a national trail system comprising National Recreation Trails, National Scenic Trails, and National Historic Trails. Only an act of Congress can designate National Scenic Trails and National Historic Trails, but the Secretary of Interior or the Secretary of Agriculture can designate National Recreation Trails to recognize exemplary trails of local and regional significance in response to an application from the trail's managing agency or organization. Through designation, these trails become recognized as part of America's national system of trails. The National Recreation Trails Program supports designated National Recreation Trails by promoting them to users and providing technical assistance, networking, and access to funding. Its goal is "to promote the use and care of existing trails and stimulate the development of new trails to create a national network of trails and realize the vision of 'Trails for All Americans'" (National Recreation Trails 2011)

Nimbus Fish Hatchery The Folsom-Nimbus project, completed in 1958, block spawning and rearing areas for salmon and steelhead. In response, Reclamation, in cooperation with the California Department of Fish and Game (DFG) and the U.S. Fish and Wildlife Service, designed, built, and operates the Nimbus Fish Hatchery to address the declining anadromous fish population. The hatchery provides recreational opportunities, including a visitor center, picnic area, parking for vehicles and bikes, access to the American River for fishing, the Jedediah Smith Memorial Trail, and the American River Hatchery to observe trout (Reclamation and DFG 2010). Visitation at the fish hatchery averaged approximately 69,000 people per year from 2005–2006 through 2009–2010. The most popular event at the fish hatchery has typically been the Salmon Festival, a 2-day event that drew up to 20,000 annually but was not held in 2009 or 2010. Visitation in 2009–2010 without the Salmon Festival was 45,739.

California State University Sacramento Aquatic Center The CSUS Aquatic Center is located at 1901 Hazel Avenue, within the Folsom Lake SRA. The Aquatic Center is located on Reclamation lands that California State Parks has agreed to administer under Public Law 89-72, the Federal Water Project Recreation Act. The center was established 1981 with approval from both State Parks and Reclamation and includes a beach area, picnic tables, barbeques, four docks, and classrooms. Courses offered at the aquatic center include kinesiology classes, leisure classes, and boating safety educations. In addition, the center offers youth programs, summer camps, and is the home of the CSUS rowing and water ski teams (CSUS 2011).

Cordova Recreation and Park District The Cordova Recreation and Park District (CRPD) is located in the east-central portion of Sacramento County, south of the American River, and is bisected by U.S. Highway 50. CRPD encompasses 75 square miles. CRPD administers a total of 438 acres, which includes 18 neighborhood parks, six community parks, four community swimming pools, the Cordova Community Center at Hagan Community Park on Chase Drive, the Cordova Senior Center on Routier Road, Mather Sports Complex, the Cordova Public Shooting Center on Douglas Road, and the Cordova Golf Course on Jackson Road. Both the Proposed and Alternative 1 Sites lie in the CRPD planning area.

Regulatory Setting

Federal Plans, Policies, Regulations, and Laws The following Federal laws related to recreation are relevant to the project and are described in detail in Section 5.6, “Compliance with Related Laws, Rules, Regulations, and Executive Orders”:

- National Wild and Scenic Rivers Act.

State Plans, Policies, Regulations, and Laws

California Wild and Scenic Rivers Act The Lower American River is classified as a “Recreation” river within the National and State Wild and Scenic River Systems (Title 16 of the U.S. Code, Section 1271 et seq.; California Public Resource Code Section 5093.50 et seq., and Public Law 90-542). The managing agency for the Lower American River is the California Resources Agency.

The Recreation classification applies to those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past. Each river is administered with the goal of protecting and enhancing the values that caused it to be designated. The intent of the act is to balance dam and other construction at appropriate sections of rivers with permanent protection for some of the country's most outstanding free-flowing rivers. To accomplish this, the act prohibits Federal support for actions such as the construction of dams or other instream activities that would harm the river's free-flowing condition, water quality, or outstanding resource values. However, designation does not affect existing water rights or the existing jurisdiction of states and the Federal government over waters as determined by established law (National Wild and Scenic Rivers 2010).

Regional and Local Plans, Policies, Regulations, and Ordinances The JOC Relocation Project is jointly proposed by Reclamation, a Federal agency, and DWR, a State agency. The Proposed Site is Federal property owned by Reclamation. A Federal agency operating on Federal land is not required to comply with regional or local plans, policies, regulations, or ordinances. However, a Federal agency normally will conform with local regulations and State laws that do not interfere with the agency's ability to "carry out the purposes of the government," such as building, health, and safety codes (*Fort Leavenworth R.R. v. Lowe*, 114 U.S. 525 [1885]).

Activities at the Proposed Site would not be required to comply with regional or local regulations, but Reclamation has committed to a "good neighbor" policy and would conform with those regulations to the extent that such compliance would not conflict with or hinder the mission and purposes of the agency or the departments located at the site. Activities at the Alternative 1 Site would take place on private property and would require full compliance with all regional and local regulations.

Sacramento County General Plan No plan, policies, regulations, or ordinances from the *1993 Sacramento County General Plan* (Sacramento County 1993) related to recreation apply to the project.

Sacramento County General Plan Update Sacramento County is in the process of preparing a draft *Sacramento County General Plan Update* (Sacramento County 2010) and EIR to plan for growth in the period 2010–2030. Until that EIR has been certified and the update has been adopted by the Sacramento County Board of Supervisors, the 1993 general plan remains in effect. Following receipt of a third-party review in December 2010, hearings on the general plan began in spring 2011 and are ongoing.

City of Rancho Cordova General Plan The *City of Rancho Cordova Bicycle Master Plan* was approved by the City Council in March 2011 as part of the General Plan (City of Rancho Cordova 2011). No policies from the Bicycle Master Plan apply specifically to the project.

American River Parkway Plan The *American River Parkway Plan* (Parkway Plan) is a policy document, adopted by Sacramento County in 2008, which provides guidelines for

preservation, recreational use, development, and administration of the American River Parkway (Sacramento County 2008). The plan includes the following goals:

- to provide, protect, and enhance for public use a continuous open space greenbelt along the American River extending from the Sacramento River to Folsom Dam;
- to provide appropriate access and facilities so that present and future generations can enjoy the amenities and resources of the Parkway, which enhance the enjoyment of leisure activities;
- to preserve, protect, interpret, and improve the natural, archaeological, historical, and recreational resources of the Parkway, including an adequate flow of high-quality water, anadromous and resident fishes, migratory and resident wildlife, and diverse natural vegetation;
- to mitigate adverse effects of activities and facilities adjacent to the Parkway; and
- to provide public safety and protection within and adjacent to the Parkway.

Guiding policy concepts for management within the Parkway and relationship of the surrounding region to the Parkway are summarized below:

- **Policy 1.1: Balanced Management—**Balanced management in order to provide for flood control, preserved and enhanced natural resources and wildlife, open space and environmental quality preservation, improved water quality and flow, habitat connectivity supporting migratory and resident wildlife, recreational opportunities, and public safety.
- **Policy 1.2: Recreation—**Provide for recreational opportunities that are appropriate in a natural environment.
- **Policy 1.3: Resource Protection—**Provide resource protection by preventing overuse of the Parkway.
- **Policy 1.4: Land Use—**Control land uses and maintain the integrity of the Parkway boundaries in order to assure long-term protection of the Parkway.
- **Policy 1.5: Cooperation—**Facilitate coordination and cooperation in Parkway planning among agencies with responsibilities within the Parkway.

Policies relating to land use include the following:

- **Policy 7.4—**Human developments and facilities, including but not limited to, buildings, fences, trails, sprinkler systems, and gates shall be prohibited in Open Space Preserve Areas, except as necessary to protect the public health, safety, welfare, or for the purposes of habitat restoration.

- **Policy 7.5**—Privately owned parcels may be developed consistent with local zoning. Parcels should not be rezoned to encourage further development.

3.12.2 Environmental Consequences and Mitigation Measures

Methods

Effects were determined by assessing the location of project facilities associated with each alternative in relation to existing recreation facilities, use areas, and access roads. This assessment was conducted by using maps of recreation facilities and use areas overlaid with maps showing the locations of project facilities.

Little information is available regarding the number of visitors to the area of the American River Parkway near the Proposed Site. Data have been provided for visitor access to the Nimbus Flat area of the Folsom Lake State Recreation Area, across Hazel Avenue from the Proposed Site, and for the Nimbus Fish Hatchery, and these data have been provided above as context for visitation in the project area.

Criteria for Determining Significance of Effects

Determinations of significance in this EIS/EIR are based on the environmental checklist in Appendix G of the State CEQA Guidelines, as amended. These determinations are provided pursuant to CEQA. The Proposed Action and alternatives under consideration were determined to result in a significant impact related to recreation if they would:

- increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or
- include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

Issues Not Discussed Further in This EIS/EIR

Adverse Physical Effects Associated with New Recreational Facilities—The project does not include recreational facilities or require the construction or expansion of recreational facilities. Thus, no impact would occur and the potential for adverse physical effects on the environment associated with new recreational facilities is not discussed further in this EIS/EIR.

Impact Analysis

See Table 3.0-2 for a summary of impacts and mitigation measures for Alternative 2 (incorporated by reference from the Mather Field Specific Plan FEIR).

Impact 3.12-1: Substantially Deteriorate the Quality of Existing Recreational Opportunities

No-Action

Under the No-Action Alternative, no construction activities would occur and the Interim JOC would continue to be used for its present purpose; therefore, the

project would not reduce the quality of existing recreational opportunities, nor result in the physical deterioration of existing recreational facilities. N**o direct** or **indirect impact** would occur.

Proposed Action

The Proposed Site is located adjacent to the American River Parkway. Recreational uses closest to this site include use of the Jedediah Smith Memorial Trail, wildlife viewing, and access to the Nimbus Fish Hatchery. The majority of wildlife viewing surrounding the site relies on the scenery, consisting of wooded upland areas and riparian forests. These areas provide habitat for a variety of wildlife (see Section 3.3, "Biological Resources"). Under existing conditions, the Proposed Site provides an extension of these views and contributes to passive recreation benefits.

Two design concepts are being considered for the Proposed Site: either one three-story building with a separate one-story Flood Operations Center building or three buildings consisting of one- and two-stories. Parking lots would be located in setback areas on the north, eastern and western edges of the site and the existing access road would be widened. As a consequence, the taller JOC buildings would be more prominent in views of the site from the northern side of the river; however, the three-story building would be more visible than would the two-story buildings. The JOC structures would potentially block views of the bluffs from the southern boundary of the site and the parking lots would detract from the scenic views of the site. The resulting loss of views and destruction of habitat (see Section 3.3, "Biological Resources") would result in the loss of the existing scenery and wildlife viewing opportunities as compared to the current conditions around the site (see Section 3.1, "Aesthetics").

In addition, during construction, noise and dust could disrupt wildlife in the area and affect the ambiance of adjacent areas within the Parkway. Widening and restructuring of the access road and parking areas located north of the Proposed Site could affect access, and ultimately passive recreation opportunities in the Parkway. Loss of wildlife viewing ability and other passive recreational activities would constitute deterioration in the quality of the recreational experience at the site. However, the American River Parkway covers 29 miles from the Folsom Dam to the Sacramento River confluence. While some recreational resources at the Proposed Site could be compromised due to implementation of the project, it would not substantially degrade recreational resources associated with the Parkway overall or in the vicinity of the Proposed Site. Thus, this **direct** impact would be **less than significant**. **No indirect impact** would occur.

Alternative 1

A portion of the Folsom South Canal Recreation Trail runs adjacent to the Alternative 1 Site, along the Folsom South Canal. This site is essentially barren land, surrounded by existing office buildings and does not provide unique passive recreational opportunities. Construction of JOC buildings on this site would not affect the Folsom South Canal Recreation Trail or otherwise substantially alter

existing recreational resources at the site. Therefore, the **direct** impact would be **less than significant** at this site. **No indirect impacts** would occur.

Mitigation Measure: No mitigation is required.

Impact 3.12-2: Increased Use of Recreational Resources, Resulting in Substantial Physical Deterioration of Facilities

No-Action
Under the No-Action Alternative, no construction activities would occur; therefore, the project would not contribute to increased use of recreational resources. **No direct** or **indirect impact** would occur.

Proposed Action
The JOC would have an estimated workforce of 600 people. It is reasonable to assume that workers would use portions of the Parkway for lunch, breaks, and commuting purposes. Although no data are available on use of the Jedediah Smith Memorial Trail or the Parkway in the area of the Proposed Site, it is reasonable to assume that there would be an increase in use. However, the Parkway Plan addresses the issue of carrying capacity, the amount and the level of acceptable use in relation to land use designations. To ensure that a particular area does not exceed its carrying capacity, the Parkway Plan provides examples of overuse, including damage to vegetation, erosion, soil compaction, and a change in wildlife species composition. If these criteria are met, overuse is to be addressed by temporarily closing an area to allow for recovery or changing the land use designation (Sacramento County 2008).

In addition, according to the City of Rancho Cordova Draft Bicycle Master Plan, approximately 0.7% (i.e., 188) of residents of Rancho Cordova and nearby communities bike to workplaces within the city of Rancho Cordova (City of Rancho Cordova 2010:2-3). Given this statistic, of the approximately 600 employees at the JOC, 4.2 people would commute to the site each day, which is not a considerably high level of use.

Therefore, because operations and maintenance of the Parkway would discourage overuse, which could result in degradation of the facilities, and a substantial increase in bicycle commuters along the Parkway is not expected, this **direct** impact would be **less than significant. No indirect impacts** would occur.

Alternative 1
The Alternative 1 Site is located adjacent to a portion of the Folsom South Canal Recreation Trail. It is reasonable to assume that some of the JOC employees would use the Folsom South Canal Recreation Trail for commuter purposes. However, as discussed above under the Proposed Action, an estimated 4.2 people would commute to the site each day. This is not considered to constitute a substantial use of the Folsom South Canal Recreation Trail that would result in

increased physical deterioration of facilities. Thus, this **direct** impact would be **less than significant**. **No indirect impacts** would occur.

Mitigation Measure: No mitigation is required.

Residual Significant Impacts

Impacts associated with degradation of existing facilities and increased use of existing recreational facilities, resulting in degradation, would be less than significant. No residual impacts would occur.

3.12.3 Cumulative Impacts

Regional recreational facilities are located near the Proposed and Alternative 1 Sites, including Folsom Lake, Lake Natoma, Prairie City SVRA, and the American River Parkway. Neighborhood and community parks are located throughout Sacramento County. CRPD provides and maintains a full range of recreational activities and park facilities.

The *2006 American River Parkway Financial Need Study Update* indicated that from 2000 to 2006, Sacramento County's population increase of 23% resulted in an estimated increase of 1.1 million Parkway visitors (Sacramento County Department of Regional Parks 2006). It is reasonable to assume that the number of Parkway visitors has further increased since 2006 because the population of Sacramento County has increased (see Section 3.13, "Socioeconomics"). However, recent budget cuts have required a reduction in maintenance staff and rangers along the American River Parkway (Baker 2009). Thus, because the Parkway has experienced an increase in use and a decrease in maintenance and law enforcement, there is a cumulatively significant effect associated with increased use resulting in degradation to recreational facilities.

Implementing the Proposed Action would likely increase the number of visitors to the American River Parkway for commuting to and from the JOC and during normal office hours for lunch and other breaks. It cannot be ascertained with any degree of certainty exactly how many workers and with what frequency they would choose to use recreational facilities. For the purpose of this analysis, it is assumed that increased use would be met with the appropriate operation and maintenance response (e.g., closing off areas experiencing adverse physical effects). Therefore, the project would not contribute to physical deterioration of regional park facilities, and the project would not result in a cumulatively considerable incremental contribution to the significant cumulative impact related to regional park facilities for either the Proposed Action or Alternative 1.

3.13 Socioeconomics

The term "socioeconomics" describes the basic attributes and resources associated with the human environment, with particular emphasis on population, employment, and housing. Substantial changes in these variables may in turn influence such issues as provision of community services and utilities, and cost of available housing. This section characterizes the population, employment, and housing changes that could trigger adverse physical effects in Sacramento County (County) or the region.

3.13.1 Affected Environment

Environmental Setting

Population

Sacramento County The following population data for the County were obtained from the adopted Sacramento County General Plan Housing Element (2008). Population data in the Housing Element were based on 1990 and 2000 U.S. Census Bureau data, California Department of Finance (DOF) data, and the Sacramento Area Council of Governments' (SACOG's) most recent projections released in 2007. From 1990 to 2000, the population of Sacramento County increased from 1,041,219 to 1,223,499, or 17.5% (Sacramento County 2008). The population in the unincorporated area of the County declined by 26% during the same time period with the incorporation of the city of Elk Grove and the city of Rancho Cordova. As of January 1, 2010, the population of Sacramento County was estimated to be 1,445,327 (DOF 2011), an approximately 15.3% increase from 2000.

The Sacramento County General Plan Housing Element projects the County's population growth in the single-digit range for each 5-year period between 2000 and 2025. Population growth per 5-year period is anticipated to gradually decline, from nearly 9% between 2000 and 2005 to about 3% between 2020 and 2025. Modest population growth is also anticipated in the unincorporated County area. However, much of the projected population growth will occur in developing areas of the County that are now part of Elk Grove and Rancho Cordova. Sacramento County is projected to have a population of 1,695,498 by 2025 (Sacramento County 2008).

City of Rancho Cordova Because the city of Rancho Cordova (City) was not incorporated at the time of the 2000 U.S. Census, the U.S. Census Bureau determined the population of Rancho Cordova using census tracts. The City conducted an analysis to calibrate the available data to the City limits using the 2000 census block groups, blocks, and tracts in relation to the City-limit boundary during preparation of its general plan. This analysis determined that the population in the City limits was 53,065 in 2000 (City of Rancho Cordova 2006: 4-3.2). The current population as of January 1, 2010, was estimated to be 62,899, which represents an approximately 19% increase from 2000 (DOF 2011).

The *City of Rancho Cordova General Plan* (City General Plan) reflects an approach that combines specific land use designations in some areas of Rancho Cordova and more general descriptions of land uses in areas planned for future growth (Planning Areas). The Planning Area for the City General Plan consists of the existing incorporated City limits, the City's sphere of influence, and surrounding areas in unincorporated Sacramento County that are anticipated to be incorporated into the City in the future.

Population projections in the City's General Plan are based on assumptions relating to existing, proposed, and approved project boundaries and expected development trends in the City and its Planning Areas by 2030 and 2050, which is consistent with the planning horizons of SACOG's Sacramento Region Blueprint. The City's General Plan estimates the population of Rancho Cordova will grow to 267,275 by 2030 and 310,568 by 2050 (City of Rancho Cordova 2006a: 3.0-15). Actual projections may potentially be higher or lower when more detailed project descriptions are developed for the Planning Areas.

Employment Employment growth is one of the primary determinants of housing demand. Working-age individuals will often choose a place to live based on employment prospects in the local area. Therefore, employment trends are an important indicator of housing demand. The rate of employment growth, and the types of jobs most likely to be created, would determine how much housing would be needed by type and cost. For example, an economy based on seasonal tourism will generate different housing needs for local workers than an economy based on government, education, research, and technology.

The following discussion provides the historical, current, and future employment conditions in Sacramento County and Rancho Cordova. The anticipated trend in the jobs/housing index is provided below under Section 3.14.3, "Cumulative Impacts."

Sacramento County The following summarizes employment trends in Sacramento County in the last 10 years (Sacramento County 2008:5-12):

- The Sacramento County economy diversified, with decreasing reliance on government employment on the long-term.
- Significant job growth occurred among companies that serve markets beyond Sacramento County.
- New jobs included higher-paying professional jobs and lower-paying service and retail jobs. However, three-fourths of new jobs in occupations with the greatest anticipated job growth will pay salaries below the Sacramento County median income.
- Most employment growth was centered within incorporated areas of the County. However, there will be an increasing potential for job growth through conversion and reuse of older commercial and industrial sites within unincorporated communities.

The Sacramento County labor market has traditionally been dominated by public agency employment, services, and retail/wholesale trades. Between 2000 and 2009, the employed

population in the labor force in the Sacramento County increased from 587,086 to 686,358 (population of persons 16 years and older) (U.S. Census Bureau 2000, 2009). Among all employers (public and private), the sectors that consist of local government agencies, health care and related services firms, educational establishments, and technology firms are among the major employers in the Sacramento region. The largest employers in Sacramento County include Kaiser Permanente, Raley's, Inc., UC Davis Health Systems, Mercy/CHW, Intel Corporation, Sutter Health, and AT&T (Sacramento County 2008:5-13).

The U.S. Census Bureau's 2007 data estimates 655,300 persons in the Sacramento County labor force (population 16 years and over) during that period (Sacramento County 2008:5-12). Annual job growth is expected to accelerate between 2010 and 2015 to over 4,000 jobs per year and then decline to about 1,400 jobs per year by 2025. Much of the projected job growth is expected to occur in employment centers located within the newly incorporated Rancho Cordova (Sacramento County 2005). Projections for employment in Sacramento County indicate 814,220 in the labor force by 2025. (Sacramento County 2008:5-14.)

City of Rancho Cordova Between 2000 and 2009, the employed population in the labor force in Rancho Cordova increased from 26,265 to 31,215 (population of persons 16 years and older) (U.S. Census Bureau 2000, 2011). The largest employers in the City include Aerojet, Delta Dental, Cedar Valley Concrete, Pacific Coast Building Products, Sprint Communications, and Vision Service Plan (City of Rancho Cordova 2009: Appendix A, page 18).

Based on the current employment totals and projections, Rancho Cordova would have approximately 146,459 jobs in the City and its Planning Area by 2030 and 195,021 jobs by 2050 (City of Rancho Cordova 2006a: 3.0-15). Employment growth is anticipated to concentrate along Sunrise Boulevard and U.S. Highway 50.

Housing

Sacramento County The total number of housing units in Sacramento County increased from 474,814 in 2000 to 556,208 in 2010. Sacramento County's housing growth rate was approximately 14.5%, with the supply and composition of housing changing little in this period. In 2010, Sacramento County had an average household size of 2.64 (considered to be a relatively large household). The County's Housing Element projects that in 2025, the total housing units would increase to 662,004 and the average household size would decrease to 2.55, based on the assumption that housing development in the unincorporated area will attract more families with children and that, conversely, there will be slight declines in average household sizes for most of the cities in Sacramento County. The 2035 projections indicate a further increase in households in the County, with a total of 732,678 households by 2035 (SACOG 2007).

The relative ability of a community to meet the demands for local housing is analyzed using a "vacancy rate," which establishes the relationship between housing supply and demand. If the demand for housing units is greater than the available supply, then the vacancy rate is low and the price of housing will most likely increase at a higher rate than

an area where supply and demand are more in balance. According to California Department of Housing and Community Development (HCD) (2000), a housing vacancy rate of 5% is considered normal. Vacancy rates below 5% indicate a housing shortage in a community. Sacramento County had an overall vacancy rate of 4.1% in 2010 (DOF 2011), which indicates that the County has an increasing availability in housing.

City of Rancho Cordova The total number of housing units in Rancho Cordova increased from 21,584 in 2000 to 24,786 in 2010 (DOF 2011). The City's housing growth rate was approximately 17%, with the supply and composition of housing changing little in this period. Approximately 63% of housing units are single-family homes and the average household size was 2.64 (considered to be a relatively large household) (DOF 2011).

The number of housing units in Rancho Cordova is anticipated to increase with the approval of large-scale development plans and the construction of new and proposed residential projects. The City estimates an average household size of 2.68 persons per dwelling unit, which is slightly higher than the DOF's average estimate of 2.64 (City of Rancho Cordova 2006a: 4.3-4). Based on existing, planned, and approved projects, the number of housing units is estimated to increase to approximately 109,884 residential units by 2030 and 126,241 by 2050 (City of Rancho Cordova 2006a: 3.0-15).

Rancho Cordova had an overall vacancy rate of 4.5% in 2010 (DOF 2011). These vacancy rates indicate that the City has an increasing availability in housing.

Regulatory Setting

Federal Plans, Policies, Regulations, and Laws No Federal plans, policies, regulations, or laws are related to socioeconomics that are relevant to the Proposed Action or alternatives under consideration.

State Plans, Policies, Regulations, and Laws No State plans, policies, regulations, or laws are related to socioeconomics that are relevant to the Proposed Action or alternatives under consideration.

Regional and Local Plans, Policies, Regulations, and Ordinances The JOC Relocation Project is jointly proposed by Reclamation, a Federal agency, and DWR, a State agency. The Proposed Site is Federal property owned by Reclamation. A Federal agency operating on Federal land is not required to comply with regional or local plans, policies, regulations, or ordinances. However, a Federal agency normally will conform with local regulations and State laws that do not interfere with the agency's ability to "carry out the purposes of the government," such as building, health, and safety codes (*Fort Leavenworth R.R. v*. Lowe, 114 U.S. 525 ([1885)]).

Activities at the Proposed Site would not be required to comply with regional or local regulations, but Reclamation has committed to a "good neighbor" policy and would conform with those regulations to the extent that such compliance would not conflict with or hinder the mission and purposes of the agency or the departments located at the site.

Activities at the Alternative 1 Site would take place on private property and would require full compliance with all regional and local regulations.

Sacramento County General Plan No policies are in the *1993 County of Sacramento General Plan* (Sacramento County 1993) related to socioeconomics that apply to the Proposed Action or alternatives under consideration.

Sacramento County General Plan Update Sacramento County is in the process of preparing a draft *Sacramento County General Plan Update* (Sacramento County 2010) and EIR to plan for growth in the period 2010–2030. Until that EIR has been certified and the update has been adopted by the Sacramento County Board of Supervisors, the 1993 general plan remains in effect. Following receipt of a third-party review in December 2010, hearings on the general plan began in spring 2011 and are ongoing.

City of Rancho Cordova General Plan Goals and policies of the *Rancho Cordova General Plan* (City of Rancho Cordova 2006b) related to socioeconomics that are relevant to the Proposed Action and the alternatives under consideration are listed below:

Land Use Element

GOAL LU.1: Achieve a balanced and integrated land use pattern throughout the community.

- **Policy LU.1.3:** Maintain a strong jobs-housing ratio, with a diverse job base and corresponding housing stock, within the Planning Area. Improve the relationship and proximity of jobs to housing and commercial services.

3.13.2 Environmental Consequences and Mitigation Measures

Methods

This section analyzes the potential for the Proposed Action and alternatives under consideration to trigger the construction of new housing or infrastructure with associated environmental effects by increasing permanent, temporary, or short-term employment opportunities and thereby affecting the jobs/housing balance. This section also considers the potential displacement of population or housing that would drive the need for construction with associated environmental consequences. The impact analysis compares the facts identified in the environmental setting to the Proposed Action or alternatives under consideration considered to determine if any of the conditions described above in the significance criteria would occur.

The examination of socioeconomic conditions in this section is based on information obtained from review of available population, employment, and housing data and projections, including those in the Sacramento County General Plan (1996) and Housing Element (2008), the City of Rancho Cordova General Plan (2006b) and Housing Element (2009), the U.S. Census Bureau (2000, 2008), the DOF (2011), and other sources.

Criteria for Determining Significance of Effects

Determinations of significance in this EIS/EIR are based on the environmental checklist in Appendix G of the State CEQA Guidelines, as amended. These determinations are

provided pursuant to CEQA. The Proposed Action and alternatives under consideration would be considered to have a significant impact related to socioeconomics if they would do any of the following:

- induce substantial population growth in an area, either directly (by proposed new homes and businesses) or indirectly (through the extension of roads or other infrastructure);
- displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere; or
- displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

Impact Analysis

See Table 3.0-2 for a summary of impacts and mitigation measures for Alternative 2 (incorporated by reference from the Mather Field Specific Plan FEIR).

Impact 3.13-1: Temporary Increase in Population and Subsequent Housing Demand during Construction

No-Action
Under the No-Action Alternative, no construction activities would occur; therefore, no construction workers would be needed and no temporary construction-related increase in population and housing demand would result. **No direct** or **indirect impact** would occur.

Proposed Action and Alternative 1
Implementation of the Proposed Action and Alternative 1 would result in a temporary increase in construction jobs throughout the planning horizon of the project, which has the potential to cause a temporary increase in population and housing demand if a large number of construction workers would be brought to the area to work on the project. Two different construction scenarios are being considered. In the first scenario the JOC would be constructed during a 2-year window, requiring approximately 64 workers for this 2-year time frame. Under the second scenario approximately 32 workers would construct the JOC during a 5-year window (2 years of construction with a 1-year break and then another 2 years of construction).

Construction workers serving the project can be expected to come from Rancho Cordova, Sacramento County, and from nearby communities. According to the latest labor data available from the U.S. Census Bureau (2009), it is estimated that 2,278 residents in Rancho Cordova and 50,002 residents in Sacramento County are employed in the construction industry. These existing residents in Rancho Cordova and counties who are employed in the construction industry would likely be sufficient to meet the demand for construction workers that would be generated by the project. Because construction workers serving the project could be

expected to come from Rancho Cordova itself and from nearby communities in Sacramento County, neither substantial population growth nor an increase in housing demand in the region is anticipated as a result of these jobs. Furthermore, if some construction workers from outside the region were employed for the project, the temporary nature of the work supports the conclusion that these workers would not typically change residences when assigned to a new construction site. Therefore, substantial permanent relocations of construction workers to the area are not anticipated. The project would not be expected to generate the need for substantial additional housing stock in Rancho Cordova or Sacramento County. Because of these conditions, the temporary increase in population growth and housing demand associated with project construction is considered a **direct, less-than-significant** impact. **No indirect** impacts would occur.

Mitigation Measure: No mitigation is required.

Impact 3.13-2: Permanent Increase in Population and Subsequent Housing Demand During Operations

No-Action
Under the No-Action Alternative, no construction activities would occur; therefore, the No-Action Alternative would not result in new land uses that would directly result in population growth. **No direct** or **indirect impact** would occur.

Proposed Action and Alternative 1
The Proposed Action and Alternative 1 would result in relocation of approximately 500 DWR and Reclamation employees from the Interim JOC on El Camino Avenue to the Proposed or Alternative 1 Sites. While the new facility would have capacity for an additional 100 workers relative to the current facility, it is anticipated that many new employees hired in the future would be from the surrounding communities. Because employees at the Interim JOC live throughout the Sacramento region, the relocation of the facility is unlikely to cause a substantial number of employees to purchase housing nearer to the new site. Therefore, the Proposed Action and Alternative 1 would not result in a direct increase in population growth in the County or City. This impact is **direct** and **less than significant**. **Indirect** impacts related to the potential that the Proposed Action and Alternative 1 could induce additional long-term population growth are addressed in Chapter 4, “Other CEQA and NEPA Considerations.”

Residual Significant Impacts
Impacts associated with socioeconomics are less than significant. Therefore, there would be no residual significant impacts.

3.13.3 Cumulative Impacts
The project would be located in Sacramento County and Rancho Cordova; therefore, the geographic area is defined as Sacramento County and Rancho Cordova. Implementation of the related projects would result in a substantial increase in population growth (i.e., a

significant cumulative impact) as planned for in the City and County general plans. However, as discussed above, 500 of the project employees would simply be relocating from the Interim JOC facility. It is anticipated that of the up to 100 new employees who could be hired in the future, they would most likely be from the surrounding communities. Therefore, the Proposed Action and Alternative 1 would not result in a substantial temporary or permanent increase in population growth in the County or City, and therefore the project would not result in a cumulatively considerable contribution to a significant cumulative impact. Because both the Proposed Site and the Alternative 1 Site do not contain existing housing or residents, no existing housing would be displaced and substantial numbers of people would not be displaced; therefore, the project would not result in a cumulatively considerable contribution to a significant cumulative impact related to displacement of housing or people.

Jobs/Housing Balance

The concept of jobs/housing balance presumes that the environment and quality of life in a given area benefit when the area has a balance between its housing supply and its employment base. In the broadest sense, the balance of jobs and housing in a metropolitan region is defined as provision of an adequate supply of housing to house workers employed in a defined geographic area, such as a community, a city, or other subregion. Alternatively, a jobs/housing balance can be defined as adequate provision of employment in a defined area that generates enough local workers to fill the housing supply. The opportunity to live close to the workplace afforded by providing housing close to jobs should translate to lower congestion and commute times by eliminating the necessity for long-distance commutes. It also provides increased opportunities to use transit, bike, or walk to work in lieu of driving. An area that has too many jobs relative to its housing supply is likely (in the absence of offsetting factors) to experience substantial in-commuting, relatively rapid increases in housing prices, and intensified pressure for additional residential development. Conversely, if an area has relatively few jobs in comparison to the number of employed residents, many of the workers are required to commute to jobs outside their area of residence. Commuting results in more traffic congestion, air quality degradation, and noise generation.

The simplest measure of jobs/housing balance is an index based on the ratio of housing units to jobs in the area. An index of 1.5 indicates a jobs/housing balance. An index above 1.5 indicates employment growth outpacing housing growth and, therefore, there are more jobs than employed residents, and may suggest that many employees are commuting in from outside the community. An index below 1.5 indicates housing growth outpacing employment growth and, therefore, there are more employed residents than jobs and may suggest that many residents are commuting to jobs outside the community. The average number of workers per household can vary from community to community, and the standard should be based on an analysis of local data on workers per household. A range of 1.3 to 1.6 is often recommended to signify balance. (Weitz 2003: 21.)

Jobs/housing indices are more useful for examining the potential for “self-containment” at the regional level than for determining whether this self-sufficiency actually exists in a given community. Balance involves more than matching numbers of housing units and numbers of jobs. Even if communities have a statistical balance between jobs and

housing, they are still very likely to experience in-commuting and out-commuting, given the variety and dispersed nature of employment and residential opportunities elsewhere in the region and the high level of mobility offered by automobiles. Trip-making decisions, including the choice of mode, are based on many factors. In the most rational scenario, mode choice is based on the relative time, cost, and availability of alternative transportation modes. However, mode choice is not simply the result of a rational decision between equally weighed travel tradeoffs. Based on theory and empirical research, perceived cost, household characteristics, and land use also affect mode choice. Additional factors shape the context in which people make trip decisions, including the fact that two-income households usually work in different locations; frequent job turnover reduces the ability to locate with reference to one's workplace; and factors other than jobs access, such as quality of schools, housing prices, and access to other amenities influence residential location choices as much as or more than proximity to employment. (Atlanta Regional Commission 2002). The jobs/housing balance is a ratio that is used for planning purposes; it is not a physical impact on the environment and therefore is not an impact evaluated under CEQA. The jobs/housing balance analysis below is presented for informational purposes only.

To allow for consistency in comparisons, the jobs/housing balance indices in this analysis the current jobs/housing balance was calculated based on employment and housing data from the U.S. Census Bureau and the future jobs/housing balance was calculated using SACOG's Metropolitan Transportation Plan's (MTP's) estimated employment and housing projections for the County and City. These projections were based on employment, population and housing growth in specific geographic locations using recent growth trends; planned projects (both adopted and in-process) in each jurisdiction; planning-related issues such as flood control, habitat and infrastructure; and the long-range planning projects in each location. The jobs/housing indices were determined by dividing the projected number of jobs by the projected number of housing units. (SACOG 2007:15-1.)

The ratio of jobs to housing varies considerably in Sacramento County. Rancho Cordova had the highest jobs ratio in 2005 with a jobs/housing index of 2.70, followed by the cities of Sacramento and Folsom with jobs/housing indices of 1.99 and 1.29, respectively. Citrus Heights had the lowest jobs to housing ratio in 2005 with a jobs/housing index of 0.53. In 2009, Sacramento County had 686,358 employed persons (population of persons 16 years and older) and 545,330 housing units for a jobs/housing index for of 1.26 (U.S. Census Bureau 2009).

The jobs/housing index for Rancho Cordova is projected to decrease from 2.70 to 1.26 in 2035 with the development of housing projects identified in the City's General Plan (SACOG 2007:15-3). In 2009, Rancho Cordova had 31,215 employed persons (population of persons 16 years and older) and 24,581 housing units for a jobs/housing index for of 1.27 (U.S. Census Bureau 2009).

Over the next 25 years, job growth is expected to improve the number of jobs compared to the number of employed residents living in the County and City, and the jobs/housing index is projected to decrease in Sacramento County and Ranch Cordova to 1.21 and

1.26, respectively, by 2035. (SACOG 2007:15-3.) However, Sacramento County and Rancho Cordova will continue to have an imbalance between housing and jobs, with employment growth outpacing housing growth, and more jobs than employed residents.

The project would result in relocation of approximately 500 Reclamation and DWR employees from the Interim JOC to the Proposed Site, Alternative 1 Site, or Alternative 2 Site. The new facility would have capacity for an additional 100 workers relative to the current facility. The project's contribution of an additional 500-600 jobs would mean that the Rancho Cordova area would continue to remain job-rich.