

MATHER SPECIFIC PLAN PROJECT

Draft Environmental Impact Statement

Prepared by
U.S. Army Corps of Engineers
Sacramento District

June 2012

**DRAFT
ENVIRONMENTAL IMPACT STATEMENT**

**Mather Specific Plan Project
Sacramento County, California**

ID: SPK-2002-561

Lead Agency:
U.S. Army Corps of Engineers
Sacramento District

ABSTRACT

Pursuant to the National Environmental Policy Act, the U.S. Army Corps of Engineers (USACE), Sacramento District has prepared a Draft Environmental Impact Statement (DEIS) to analyze the potential direct, indirect and cumulative effects associated with the No Action alternative and three large-scale, mixed-use development alternatives in the approximately 5,749 –acre Mather Specific Plan area, Sacramento County, California (note that approximately 2,554 acres of the Plan area contains existing development, primarily Mather Airport, a Commerce Center, a residential subdivision, lake and golf course).

The alternatives considered in detail are: (A) Applicant's Preferred Alternative; (B) 2006 Conceptual Land Use Plan Alternative; (C) Multiple Preserves Alternative; and (D) No Action/No USACE Permit Alternative. Under Alternative A, the applicant (Sacramento County Office of Economic Development and Marketing) proposes to fill a total of 40.25 acres of waters of the U.S., including seasonal wetlands, vernal pools and swales, channels and drainage ditches. Under Alternative B a total of 39.64 acres would be filled and under Alternative C a total of 33.65 acres would be filled. Alternative D, avoids the placement of dredged or fill material into waters of the U.S.

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Comments on the DEIS must be submitted to USACE by August 13, 2012 at the address listed above. An electronic copy of the DEIS may be found on the USACE website at: <http://www.spk.usace.army.mil/Missions/Regulatory/Overview/EnvironmentalImpactStatements.aspx>. A hard copy of the DEIS is available for review at the USACE office during normal business hours. To schedule a time to view the hard copy, please contact Kathleen Dadey.

The USACE will also conduct a public meeting for the DEIS on July 25, 2012 from 4:00 p.m. to 7:00 p.m. in Main Conference Room A at 10590 Armstrong Avenue, Mather, California 95655. Interested parties can provide oral and written comments at this meeting.

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EXECUTIVE SUMMARY

Mather Specific Plan Project

ES.1 Introduction

This Draft EIS has been prepared by the U.S. Army Corps of Engineers (USACE), Sacramento District to address the potential environmental effects of developing a large-scale, mixed-use development within the Mather Specific Plan project site. The proposed action under the National Environmental Policy Act (NEPA) is the USACE consideration of authorization of the Sacramento County Office of Economic Development and Marketing's (Applicant's) Preferred Alternative pursuant to Section 404 of the Clean Water Act. The project site is located in eastern Sacramento County, California within the boundaries of the Mather Specific Plan. The project site is generally bounded by Mather Road to the north, the Folsom South Canal to the east, Kiefer Boulevard to the south, and Old Placerville Road/Happy Lane to the west. Regional access to the project site is provided by Highway 50 and State Route 16, with local access provided by Sunrise Boulevard via Highway 50 and Excelsior Road via State Route 16.

ES.2 Purpose and Need

The Sacramento County Office of Economic Development and Marketing, as the Applicant, submitted applications to USACE for permits under Section 404 of the Clean Water Act for the fill of approximately 34.27 acres of wetlands and other waters of the U.S. within the project site. Since the submission of the applications, the amount of proposed fill has been corrected to 40.25 acres. This change from the original proposals is due to refinements in the Applicant's GIS data, a revision to the proposed alignment of Eagles Nest Road, and a revised jurisdictional delineation which identified additional and expanded jurisdictional features in areas proposed for development. The Applicant indicates that the project is needed to provide for a sustainable economic development in the Mather Specific Plan area, expanding recreation opportunities while ensuring attainment of conservation goals.

Sacramento County has been involved in the redevelopment of the project site and the transition of the Mather Air Force Base (AFB) from military to civilian ownership since 1989. A basic premise of the transfer is reuse of the former AFB, including recreational and economic reuse of lands transferred to the County. Therefore, there is a need to specifically examine potential reuse options within the Mather Specific Plan area, and recognition that development of areas outside of the Specific Plan area would not meet this purpose. Given this information, USACE has determined that the overall project purpose statement is:

A large scale, mixed use development to promote economic and wetland conservation opportunities within the Mather Specific Plan area.

ES.3 Alternatives

This document analyzes the potential environmental consequences associated with four alternatives. The alternatives are described in detail in **Chapter 2.0** and are summarized below.

Alternative A – Applicant's Preferred Alternative

Alternative A, the Applicant's Preferred Alternative, includes the development of a large-scale, mixed-use development within the Mather Specific Plan project site. The Applicant's Preferred Alternative requires Section 404 permits from the USACE for proposed fill of 40.25 acres of waters of the U.S. Proposed land uses include airport commercial, commercial, economic development (aggregate extraction), university village/residential, parks and recreation, regional sports park, and infrastructure. A 1,272-acre Preserve and 13-acre riparian buffer area would provide protection for wetlands (including vernal pools) and endangered species. Several known occurrences of federally listed branchiopods and special-status plant species would be protected within the Preserve, including vernal pool fairy shrimp, vernal pool tadpole shrimp, and legenera. The Preserve would also protect federally listed critical habitat for vernal pool fairy shrimp, tadpole shrimp, slender Orcutt grass, and Sacramento Orcutt grass.

Alternative B – 2006 Conceptual Land Use Plan Alternative

In February 2006, the Sacramento County Board of Supervisors approved Resolution No. 2006-0209 and associated Board letter which conceptually endorsed a revised land use plan for the Mather Specific Plan area. Alternative B is based on the land uses and proposed boundaries for Preserve and Avoided areas based on the conceptually endorsed plan. This alternative includes the development of a large-scale mixed-use development on the project site. Alternative B would also require Section 404 permits from the USACE for the proposed fill of 39.64 acres of waters of the U.S. Proposed development includes airport commercial, commercial, economic development (aggregate extraction), university village/residential, parks and recreation, regional sports park, and infrastructure.

Alternative B includes a 1,064-acre Preserve and 27 acre riparian buffer area which would provide protection for wetlands (including vernal pools) and endangered species. Alternative B includes four "avoidance areas" with a total of 93 acres within the parks and recreation and university village/residential areas.

Alternative C – Multiple Preserves Alternative

Alternative C would also require Section 404 permits from the USACE for the proposed fill of 33.65 acres of waters of the U.S. This alternative proposes land uses identical to Alternative A

with the addition of three smaller Preserves within the commercial development and university village/residential areas. Alternative C includes 1,346 acres of Preserve and 13 acres of riparian buffer area. Thus, development acreage within these two areas would be reduced in comparison to Alternatives A and B.

Alternative D – No Permit Alternative (No Action)

This alternative avoids the placement of dredged or fill material into waters of the U.S., including wetlands, thus eliminating the need for authorization by the USACE. A reduced amount of future development could occur without authorization. This includes infill development at Mather Airport and aggregate extraction in the southwestern corner of the project site.

ES.4 Areas of Environmental Controversy

To date, areas of environmental controversy have been identified through the scoping process (ESA, 2010). Specific comments were received in the following issue areas: Air Quality, Alternatives Analysis, Aquatic Resources, Biological Resources, Climate Change, Cumulative Effects, Flooding, and Mitigation. At this time the issues remain relatively equal in controversy. The issues that generated the most comments and/or range of comments were Air Quality, Aquatic Resources, and Biological Resources.

ES.5 Environmental Consequences and Mitigation Summary

Table ES-1 summarizes the environmental consequences and mitigation for each alternative in the EIS. In addition, the significance for each impact is shown before and after implementation of the associated mitigation measures.

**TABLE ES-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Mitigation Measures	Original Impact / Residual Impact with Mitigation			
		Alternative A	Alternative B	Alternative C	Alternative D
SECTION 4.2. Geology, Soils and Mineral Resources					
Impact 2.1: Erosion from Construction	None	LS	LS	LS	LS
Impact 2.2: Structural Damage from Seismic Activity and Related Geologic Hazards	None	LS	LS	LS	LS
Impact 2.3: Structural Damage from Expansive and Corrosive Soils	For Alternatives A, B and C: Mitigation Measure 2.3: Geotechnical Study and Implementation of Recommendations. Geotechnical and/or geologic studies for each development area would be prepared to identify the characteristics of soils prior to development of that area, including construction of any structures, utilities or roadways. Any recommendations identified by the geotechnical investigations would be incorporated into the design of the structures.	S/LS	S/LS	S/LS	LS
Impact 2.4: Loss of Mineral Resources	None	LS	LS	LS	LS
SECTION 4.3. Hydrology, Flooding and Water Quality					
Impact 3.1: Construction-Related Water Quality Degradation	None	LS	LS	LS	LS
Impact 3.2: Operation Period Water Quality Degradation	None	LS	LS	LS	LS
Impact 3.3: Changes in Drainage and Flooding Patterns	For Alternatives A, B and C: Mitigation Measure 3.3: Comprehensive Drainage Plan. In order to ensure that the proposed development would not result in detrimental increases in stormwater flow or flooding on site or downstream the project proponent would prepare and adhere to a Comprehensive Drainage Plan. The comprehensive drainage plan would include engineered facilities, such as retention basins, flood control channels, storm drainage facilities, and other features needed to ensure no net increase in stormwater discharge under a minimum 20-year, 24-hour storm event, as a result of the development. Development related increases in stormwater flows would be assessed based on proposed changes in impervious surface coverage on site, as well as proposed grading and related changes in site topography.	S/LS	S/LS	S/LS	LS
Impact 3.4: Floodplain Values, Interference with Flood Flows	For Alternatives A, B and C: Mitigation Measure 3.4: 100-Year Flood Extent Investigation. Prior to project level engineering, design, or construction of the proposed facilities, the project proponent would complete an evaluation of potential 100-year flooding for areas of proposed development. The analysis would include an assessment of potential for flooding along Morrison Creek, its tributaries, and other waterways located on site. The analysis would be completed in accordance with FEMA floodplain delineation and mapping procedures, and would be used as a basis for detailed planning for development of the action area.	S/LS	S/LS	S/LS	NI

Legend: NI = No Impact; LS = Less-Than-Significant -impact; S = Significant

**TABLE ES-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Mitigation Measures	Original Impact / Residual Impact with Mitigation			
		Alternative A	Alternative B	Alternative C	Alternative D
Impact 3.5: Flooding due to Dam Failure	<p>For Alternatives A, B and C:</p> <p>Mitigation Measure 3.5: Facility Restrictions within Potential Dam Failure Inundation Areas. The project proponent shall ensure to the extent practicable that permanent structures are sited outside of areas of inundation, as delineated by the USACE (1996) study. In the event that siting of a structure within the inundation area cannot be avoided, the project proponent shall ensure that the minimum finished floor level of that structure is raised to the maximum anticipated inundation height, as a result of catastrophic dam failure, plus at least one foot of additional freeboard. Note that the placement of fill, as relevant, is subject to Sacramento County General Plan Policy CO-94.</p>	S/LS	S/LS	S/LS	NI
Impact 3.6: Potential for Depletion of Groundwater	<p>For Alternatives A, B and C:</p> <p>Mitigation Measure 3.6: Limitations on Groundwater Use for Aggregate Extraction Operations. In order to ensure that aggregate extraction operations would not result in a reduction in groundwater levels, the project proponent would ensure that aggregate extraction operations would not result in a net increase in the total volume of groundwater that is extracted on site, on an annual basis. If additional water is required for aggregate extraction operations, that water would be provided from a separate source.</p>	S/LS	S/LS	S/LS	LS
Impact 3.7: Aggregate Extraction Impacts	<p>For Alternatives A, B and C:</p> <p>Measure 3.7a: Stormwater Protection. The project proponent would ensure that all drainage on site in the aggregate extraction area, including the aggregate extraction area, overburden storage areas, and equipment storage areas, would be contained on site pursuant to Sacramento County Standards. Stormwater would be retained in the aggregate extraction area, or in dedicated retention and settling ponds, buffer areas, vegetated swales or similar stormwater quality protection facilities, sufficient to remove sediment and operation related pollutants from stormwater flows. Upon final reclamation of the aggregate extraction area, site drainage is expected to be directed to recessed reclaimed areas, and away from surface water drainages.</p> <p>Measure 3.7b: Spill Prevention Control. The project proponent would ensure that all aggregate extraction operations are covered under an applicable spill prevention, control, and countermeasures (SPCC) plan. The SPCC plan would include measures to prevent spills of fuels, oils, greases, antifreeze, and other potential water quality pollutants that would be used on site. The SPCC plan would also include measures for containing, controlling and cleaning up/remediating spills that do occur on site, in order to ensure that such spills do not result in subsequent degradation of water quality.</p> <p>Measure 3.7c: Prepare Reclamation Plan. The project proponent would ensure that a comprehensive Reclamation Plan is completed that addresses end of life procedures for closing the aggregate mine. In regards to hydrologic resources, the Reclamation Plan would incorporate requirements for post-use grading and rehabilitation operations. Stockpiled overburden would be replaced in its original location, and graded to meet, as closely as possible, natural grades and topography. In order to protect surface water quality following rehabilitation, land surfaces would be graded to drain internally to depleted former mined areas.</p>	S/LS	S/LS	S/LS	LS

Legend: NI = No Impact; LS = Less-Than-Significant -impact; S = Significant

**TABLE ES-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Mitigation Measures	Original Impact / Residual Impact with Mitigation			
		Alternative A	Alternative B	Alternative C	Alternative D
SECTION 4.4. Air Quality					
Impact 4.1: Effects from Construction Related Emissions	<p>For Alternatives A, B and C:</p> <p>Measure 4.1a: Limit Daily Grading Activities. The project proponent would require the construction contractors to limit the maximum daily disturbed area throughout the project site to 15 acres or less. If daily grading is projected to be greater than 15 acres, the project proponent would conduct dispersion modeling of PM10 emissions generated during construction to determine if estimated levels would exceed the California Ambient Air Quality Standard (CAAQS) at the nearest receptor. If significant, adverse PM10 concentrations are identified, a PM10 Reduction Plan would be prepared for approval by the SMAQMD that describes how concentrations would be limited to less-than-significant levels.</p> <p>Measure 4.1b: Use Basic Construction Emission Control Practices. The project proponent would require the construction contractors to implement SMAQMD Basic Construction Emission Control Practices.</p> <p>Measure 4.1c: Use Enhanced Exhaust Control Practices. The project proponent would require construction contractors to implement the SMAQMD Enhanced Exhaust Control Practices.</p> <p>Measure 4.1d: Compensate for NOx Emissions. The project proponent would pay SMAQMD an off-site mitigation fee for the purpose of reducing NOx emissions to less than the threshold level (i.e., less than 85 lbs/day). The specific fee amounts would be calculated when the daily construction emissions are determined. Calculation of fees associated with each development phase would be conducted by the project proponent in consultation with SMAQMD staff before the approval of grading plans.</p>	S/LS	S/LS	S/LS	LS
Impact 4.2: Effects from Operational Emissions	<p>For Alternatives A, B and C:</p> <p>Measure 4.2: Develop and Implement an Air Quality Mitigation Plan (AQMP). The project proponent would develop an AQMP in coordination with and approved by SMAQMD. The AQMP would include measures to reduce operational emissions by at least 15 percent.</p>	S/S	S/S	S/S	S
Impact 4.3: Construction Emissions with Respect to Federal General Conformity	<p>For Alternatives A, B and C:</p> <p>Measure 4.3: Use Low VOC Coatings. The project proponent would require construction contractors to use low VOC architectural coatings for all buildings in order to reduce ROG emissions.</p>	S/S	S/S	S/S	LS
Impact 4.4: Effects from Operational Emissions with Respect to Carbon Monoxide	None	LS	LS	LS	LS
Impact 4.5: Effects from Construction and Operational Emissions with Respect to Toxic Air Contaminants	<p>For Alternatives A, B and C:</p> <p>Measure 4.5: Reduce Potential TAC Exposure to Sensitive Receptors. The project proponent would develop a plan to reduce the exposure of sensitive receptors to TACs generated by construction and operational activity. Each plan would be developed by the project proponent in consultation with SMAQMD. The plan would be submitted to the County for review and approval before the approval of any grading plans.</p> <p>For construction activities, the plan may include, but not be limited to, measures such as scheduling activities when the residences are least likely to be occupied, requiring equipment to be shut down when</p>	S/LS	S/LS	S/LS	LS

Legend: NI = No Impact; LS = Less-Than-Significant -impact; S = Significant

**TABLE ES-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Mitigation Measures	Original Impact / Residual Impact with Mitigation			
		Alternative A	Alternative B	Alternative C	Alternative D
	not in use, prohibiting heavy trucks from idling, using new diesel engines that are designed to minimize DPM emissions (usually through the use of catalyzed particulate filters in the exhaust), or retrofitting older engines with catalyzed particulate filters which would reduce up to 85% of DPM emissions. Applicable measures would be included in all development plans and specifications for each development phase. For operations, plans and may include, but not limited to, measures listed in Section 4.4.				
Impact 4.6: Objectionable Odors	<p>For Alternatives A, B and C:</p> <p>Measure 4.6: Reduce Odors. The project proponent would implement the following odor control measures during construction or operation:</p> <ul style="list-style-type: none"> Consider the odor-producing potential of land uses when the exact type of facility that would occupy areas zoned for commercial, industrial, or mixed-use land uses is determined. Facilities that have the potential to emit objectionable odors would be located with appropriate buffers from existing and proposed sensitive receptors. Identify odor control devices within building permit applications to mitigate the exposure of receptors to objectionable odors if a potential odor-producing source is to occupy the project area. The identified odor control devices would be installed before the issuance of certificates of occupancy for the potentially odor-producing use 	S/LS	S/LS	S/LS	LS
SECTION 4.5. Biological Resources					
Impact 5.1: Effects to Federally Listed Vernal Pool Species and Critical Habitat	<p>For Alternatives A, B and C:</p> <p>Implement Measure 3.3: Comprehensive Drainage Plan.</p> <p>Measure 5.1a: Compensate for the Loss of Habitat for Vernal Pool Species. The project proponent proposes on-site habitat preservation in perpetuity and purchase of habitat creation credits at an USACE and USFWS approved mitigation bank and/or to restore/enhance habitat within the designated Preserve areas upon USFWS approval to fully compensate for direct and indirect effects to habitat for federally listed vernal pool species. While final ratios would be determined in consultation with USFWS, it is estimated that compensation would be at a minimum 2:1 preservation ratio and 1:1 creation ratio for direct effects to habitat for vernal pool species, and a 2:1 preservation ratio for indirect effects to habitat for vernal pool species.</p> <p>Options for habitat compensation include Option 1: Purchase Vernal Pool Habitat Credits, Option 2: Implement On Site Restoration/Enhancement, or a combination thereof. These options are more fully discussed in Section 4.5.</p> <p>Measure 5.1b: Use Best Management Practices (BMPs) to Provide Effective Erosion and Sediment Control. Use of BMPs for stormwater control is expected to reduce the potential for preserved and avoided habitat for vernal pool species to be indirectly affected by sediment-laden discharges from construction sites. The performance and effectiveness of these BMPs would be determined either by visual means, where applicable (i.e., observation of above-normal sediment release), or by actual water sampling in cases where the verification of containment reduction or elimination is required to determine</p>	S/LS	S/S	S/LS	LS

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**TABLE ES-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Mitigation Measures	Original Impact / Residual Impact with Mitigation			
		Alternative A	Alternative B	Alternative C	Alternative D
	<p>the adequacy of the measures. BMPs to be implemented would include, but are not limited to, the measures discussed in Section 4.5.</p> <p>Measure 5.1c: Conduct Worker Environmental Awareness Training (WEAP). A Worker Environmental Awareness Program (WEAP) training for construction crews and construction forepersons would be conducted before any construction activities begin. This mitigation is more fully discussed in Section 4.5.</p> <p>Measure 5.1d: Limit Project Access Routes/Staging Areas. The total number of access routes, number and size of staging areas, and the total area of construction activity would be limited to those areas identified in the approved construction drawings and/or plans or as otherwise approved per permit conditions. Access routes and project boundaries would be clearly marked at all times. Access routes for heavy equipment to and from the project site would be restricted to established roadways to minimize habitat disturbance. The storing of construction equipment, vehicles, and supplies would be restricted to the designated construction staging areas outside of proposed Preserve(s), designated avoided, and riparian buffer areas. All fueling, cleaning and maintenance activities of vehicles and other equipment would be performed only in designated areas and at least 250 feet away from avoided/preserved habitats. As part of WEAP training, all workers would be informed of the importance of preventing spills and appropriate measures to take in the event of a spill. All spills would be cleaned up immediately.</p> <p>Measure 5.1e: Protect Preserved and Avoided Habitats. Avoided and preserved habitat, including habitat within designated Preserve and Riparian Buffer areas, would be protected at all times from construction activities. Habitat protection measures would include the following:</p> <ul style="list-style-type: none"> • A USFWS-approved biologist (monitor) would inspect all construction-related activities at the project site to ensure that no unauthorized take of listed species or destruction of their habitat occurs. The biologist would have the authority to stop any activities that may result in such take or destruction until appropriate corrective measures have been completed. The biologist also would be required to report immediately any unauthorized impacts to the USFWS and the CDFG. • Adequate fencing would be placed and maintained around all avoided (preserved) habitat for vernal pool species to prevent direct impacts from construction. 				
Impact 5.2: Potential to Conflict with provisions of the USFWS Vernal Pool Recovery Plan	<p>For Alternative B only:</p> <p>Measure 5.2: Preserve, Restore or Enhance Additional Habitat for Vernal Pool Species. Additional habitat for vernal pool species (approximately 0.8 acres) would be preserved or restored within the Mather Core Area to meet the 85% minimum goals of the recovery plan. Preservation or restoration may occur within or outside of the project site, but must occur within the designated boundaries of the Mather Core Area. Preservation would take the form of either purchasing mitigation credits from a USACE and USFWS approved mitigation bank or through conservation easements and an endowment of preservation lands within the Mather Core Area. Proposed restoration plans, including associated land restrictions, require approval from USFWS and USACE. Proof of preservation, restoration or enhancement must be provided to the USACE and USFWS prior to project construction.</p>	LS	S/S	LS	NI

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Impact	Mitigation Measures	Original Impact / Residual Impact with Mitigation			
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Impact 5.3: Effects to Valley Elderberry Longhorn Beetle	For Alternatives A, B and C: Measure 5.3: Mitigate for Impacts to VELB and its Habitat. Prior to construction, the project site would be surveyed for the presence of the beetle and its elderberry host plant by a qualified biologist in accordance with USFWS protocols. If elderberry plants with one or more stems measuring 1.0 inch or greater in diameter at ground surface level occur on or adjacent to the construction sites, or are otherwise located where they may be directly or indirectly affected, minimization and compensation measures, which include transplanting existing shrubs and planting replacement habitat (conservation plantings), would be undertaken (see Section 4.5).	S/LS	S/LS	S/LS	NI
Impact 5.4: Effects to Golden Eagle	None	LS	LS	LS	LS
Impact 5.5: Effects to Western Spadefoot	For Alternatives A, B and C: Measure 5.5: Perform Pre-construction Surveys for Western Spadefoot. Prior to construction, a qualified biologist would conduct a survey for western spadefoot. The survey would include transecting all suitable habitat that may be affected by proposed activities and identifying suitable burrows that may be used for aestivation. Suitable burrows would be excavated using hand tools. If a spadefoot is found in a construction area, the biologist would move the spadefoot from the area to suitable habitat within the proposed Preserve.	S/LS	S/LS	S/LS	LS
Impact 5.6: Effects to Western Pond Turtle	For Alternatives A, B and C: Measure 5.6: Perform Pre-construction Surveys for Western Pond Turtle. Prior to construction, a qualified biologist would conduct a survey for western pond turtles within 24 hours of the start of construction activities within 500 feet of streams, ditches, and other watercourses located within the proposed construction areas. If no individuals are identified then no additional measures are required. If a turtle is found in a proposed construction area, the biologist would move the turtle from the area to suitable habitat within the proposed Preserve. If a turtle becomes trapped during construction activities, a biologist would remove the turtle from the work area and place it in a suitable area of the proposed Preserve.	S/LS	S/LS	S/LS	LS
Impact 5.7: Effects to Nesting Special-Status Birds Species and Migratory Birds	For Alternatives A, B and C: Measure 5.7a: Avoid Active Nesting Season. To avoid and minimize impacts to tree and shrub nesting species, the following measures would be implemented; <ul style="list-style-type: none"> • If feasible, conduct all tree and shrub removal and grading activities during the non-breeding season (generally September 1 through January 31). • If grading and tree removal activities are scheduled to occur during the breeding and nesting season (February 1 through August 31), pre-construction surveys would be performed prior to the start of proposed activities (refer to Measure.5.7b). Measure 5.7b: Conduct Pre-construction Nesting Bird Surveys. If construction, grading or other project-related activities are schedule during the nesting season (February 1 to August 31), pre-construction surveys would be conducted by a qualified wildlife biologist to identify active Swainson's hawk nests	S/LS	S/LS	S/LS	LS

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Impact	Mitigation Measures	Original Impact / Residual Impact with Mitigation			
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	<p>within ½-mile of proposed construction activities and nests of other species within 250 feet of proposed construction activities. The surveys would be conducted no less than 14 days and no more than 30 days prior to the beginning of construction. The results of the survey would be emailed to CDFG at least three days prior to construction. Surveys would be conducted by a qualified biologist.</p> <p>If the pre-construction surveys do identify nesting raptors or other nesting bird species within areas that may be affected by site construction, Measure 5.7c would be implemented.</p> <p>Measure 5.7c: Avoid Active Bird Nest Sites. Should active nest sites be discovered within areas that may be affected by construction activities, additional measures would be implemented as described in Section 4.5 for Swainson's Hawk, Burrowing Owls, Tricolored Blackbird, Short-eared Owl, Northern Harrier, White-Tailed Kite, Loggerhead Shrike, and other Migratory Birds.</p>				
Impact 5.8: Effects to Special-Status Wildlife Associated with Annual Grasslands	None	LS	LS	LS	LS
Impact 5.9: Effects to Special-Status Plants	<p>For Alternatives A, B and C:</p> <p>Measure 5.9a: Perform Pre-construction Surveys for Special-Status Plants. Prior to construction, vegetated portions of the project site including wetland habitats would be surveyed by a qualified botanist for special-status plants following established CDFG Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Natural Communities (CDFG, 2009), which calls for protocol-level surveys during the appropriate flowering/identification period for each potentially affected species.</p> <p>Measure 5.9b: Compensate for the Loss of Special-Status Plant Populations. Known populations of Bogg's Lake hedge-hyssop, Ahart's dwarf rush, and legenere would be protected within the Preserve. Alternative A would also directly affect two known populations of legenere, and may affect additional, undocumented populations of special-status plants. Measures to compensate for the loss of special status species are listed in Section 4.5.</p>	S/LS	S/LS	S/LS	LS
Impact 5.10: Loss of Native Oaks and Other Protected Trees	<p>For Alternatives A, B and C:</p> <p>Measure 5.10: Protect Sensitive Tree Resources Adjacent to Construction Activities. Sensitive tree resources adjacent to construction activities may require additional protection. Where feasible, buffer zones should include a minimum one-foot-wide buffer zone outside the dripline for oaks and landmark trees. Grading within the driplines of oak trees would not be permitted unless specifically authorized by a Certified Arborist.</p>	S/LS	S/LS	S/LS	LS
SECTION 4.6. Aquatic Resources					
Impact 6.1: Effects to Wetlands and Other Waters of the U.S.	<p>For Alternatives A, B and C:</p> <p>Implement Mitigation Measures 5.1a: Compensate for Loss of Vernal Pool Habitat, 5.1b: Use Best Management Practices (BMPs) to Provide Effective Erosion and Sediment Control, 5.1c: Conduct Worker</p>	S/LS	S/LS	S/LS	LS

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	<p>Environmental Awareness Training (WEAP), 5.1d: Limit Project Access Routes/Staging Areas and 5.1e: Protect Preserved and Avoided Habitats.</p> <p>Measure 6.1: Fully Compensate for the Loss of Waters of the U.S.: The project proponent would ensure that any loss of waters of the U.S. would be compensated for by restoration or creation of waters at a ratio no less than 1:1, prior to construction. Compensation may include on or off site creation, restoration, or enhancement, or purchase of appropriate credits from a Corps-approved mitigation bank. On-site or off-site creation/restoration plans would be prepared by a qualified biologist prior to construction and approved by the Corps. On- or off-site creation/restoration sites would be monitored for at least five years to ensure their success.</p>				
SECTION 4.7. Cultural and Historic Resources					
Impact 7.1: Effects to Historic Properties	<p>For Alternatives A, B and C:</p> <p>Measure 7.1. Evaluate Historic-Period Sites and Develop a Historic Properties Treatment Plan. Historic-period structures within the APE would be comprehensively surveyed and evaluated for NRHP eligibility. In the event that any historic resources are determined eligible for listing in the National Register, a Historic Properties Treatment Plan (HPTP) would be developed in order to resolve adverse effects to any sites that would be affected. The HPTP would provide background information, describe the sites, present treatment measures, and provide a timetable for completion of the proposed measures.</p>	S/LS	S/LS	S/LS	LS
Impact 7.2: Effects to Cultural and Paleontological Resources	<p>For Alternatives A, B and C:</p> <p>Measure 7.2a. Stop Work in the Event of an Archaeological or Paleontological Discovery. If potentially significant cultural resources, including archaeological or paleontological resources, are discovered during ground-disturbing activities associated with Alternative A, work would halt in that area until a qualified archaeologist can assess the significance of the find, and, if necessary, develop appropriate treatment measures. If the archaeologist, with concurrence from SHPO, determines that a find is not significant and the impact not adverse, construction would proceed. If any find is determined to be significant and the effects adverse, the project proponent and a qualified archaeologist would meet with USACE to determine the appropriate measures to recover or protect the resource.</p> <p>Measure 7.2b. Stop Work in the Event of the Discovery of Human Remains. In the event of discovery of any human remains on the site, there would be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of Sacramento County has been contacted. If the coroner determines that the human remains are of Native American origin, the Native American Heritage Commission will be notified and the guidelines of the NAHC will be adhered to in the treatment and disposition of remains (Public Resources Code 5097).</p>	S/LS	S/LS	S/LS	LS
SECTION 4.8. Socioeconomics and Environmental Justice					
Impact 8.1: Temporary Increase in Population and Housing Demand During Construction	None	LS	LS	LS	LS

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Impact 8.2: Consistency with Growth Assumptions	None	LS	LS	LS	LS
Impact 8.3: Increased Housing Demand	None	LS	LS	LS	LS
Impact 8.4: Potential Effects on Minority and Low-Income Populations	None	LS	LS	LS	LS
Section 4.9 Transportation and Traffic					
Impact 9.1 Sacramento County Intersection and Roadway Performance	For Alternatives A, B and C: Measure 9.1: Intersection Improvements. The project proponent would provide contributions for improvements to the following roadways: <ul style="list-style-type: none"> • Bradshaw Road and Jackson Road (SR-16) • Eagles Nest Road and Jackson Road (SR-16) • Grant Line Road and White Rock Road 	S/LS	S/LS	S/LS	LS
Impact 9.2 City of Rancho Cordova Intersection and Roadway Performance	For Alternatives A, B and C: Measure 9.2: City of Rancho Cordova Roadway/Intersection Improvements. The project proponent would provide contributions for improvements to the following City of Rancho Cordova roadway network facilities: Roadways <ul style="list-style-type: none"> • Sunrise Blvd - Kiefer Blvd to Jackson Rd (SR-16) • Old Placerville Rd - Bradshaw Rd to Routier Rd • Jackson Rd (SR-16) - Sunrise Blvd to Grant Line Rd Intersections <ul style="list-style-type: none"> • Bradshaw Road and Old Placerville Road • Mather Field Road and Rockingham Drive • Sunrise Boulevard and Jackson Road (SR-16) • Grant Line Road and Douglas Road • Zinfandel Drive and Douglas Road • Zinfandel Drive and Chrysanthy Boulevard • Mather Boulevard and Douglas Road 	S/S	S/S	S/S	LS
Impact 9.3 Caltrans Intersection and Roadway Performance	For Alternatives A, B and C: Measure 9.3: Contribute to Caltrans Roadway Improvements. The project proponent would provide contributions for improvements to the eastbound diverge to Mather Field Road Off-Ramp through the addition of an auxiliary lane to allow a double lane off ramp.	S/LS	S/LS	S/LS	LS
Impact 9.4: Bicycle, Pedestrian, and Public Transit Impacts	None	LS	LS	LS	LS

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Impact 9.5: Construction-Related Impacts to Transportation Network	None	LS	LS	LS	LS
SECTION 4.10. Land Use and Agriculture					
Impact 10.1 Consistency with Existing Land Use Plans	None	LS	LS	LS	LS
Impact 10.2 Compatibility with Existing Land Uses	None	LS	LS	LS	LS
Impact 10.3 Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, to Non-Agricultural Use	None	LS	LS	LS	LS
SECTION 4.11. Public Services, Utilities and Recreation					
Impact 11.1: Increased Demand for Municipal Water Service and Facilities	None	LS	LS	LS	LS
Impact 11.2: Increased Demand for Municipal Wastewater Service and Facilities	For Alternatives A, B and C: Measure 11.2: Coordinate Wastewater Service. Prior to construction, the project proponent would prepare a design-level sewer study for review and approval by SASD and SRCSD to document that existing and/or proposed conveyance facilities have adequate capacity.	S/LS	S/LS	S/LS	LS
Impact 11.3: Increased Generation of Solid Waste	None	LS	LS	LS	LS
Impact 11.4: Increased Demand for Energy and Telecommunications Infrastructure	For Alternatives A, B and C: Measure 11.2: Undertake Energy Service Agreements. The project proponent would submit service applications with design-level demands to SMUD and West Coast Gas to ensure adequate energy services are provided for each land use.	S/LS	S/LS	S/LS	LS
Impact 11.5: Increased Demand for Law Enforcement Services	None	LS	LS	LS	LS
Impact 11.6: Increased Demand for Fire Protection Services	None	LS	LS	LS	LS
Impact 11.7: Increased Demands on Public School Facilities	None	LS	LS	LS	LS
Impact 11.8: Increased Demand for Recreational Facilities	None	LS	LS	LS	LS

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SECTION 4.12. Hazards and Hazardous Materials					
Impact 4.12.1: Potential Release of or Exposure to Hazardous Materials	<p>For Alternatives A, B and C:</p> <p>Measure 12.1a: Measures to Prevent Possible Exposure to Previously Undiscovered On-site Hazardous Materials. If during site preparation and construction activities, previously undiscovered or unknown hazardous materials are observed or suspected through either obvious or implied measures (e.g., stained or odorous soil), construction contractor(s) would immediately cease all activities in the area of the find.</p> <p>The contractor(s) would immediately contact Sacramento County Environmental Management Department (SCEMD) staff for direction on further protocols regarding management of suspected soil or groundwater contamination and interim requirements for remediation, if any. In addition, the project proponent would contract with a qualified consultant registered in the California Department of Toxic Substances Control's (DTSC's) Registered Environmental Assessor Program to assess the situation. The Registered Environmental Assessor would collect soil and/or water samples for laboratory analysis in accordance with SCEMD oversight to determine potential health concerns. Any contaminated areas would be remediated in accordance with recommendations of SCEMD, the Central Valley Regional Water Quality Control Board, DTSC, or other appropriate federal, state, or local regulatory agencies. Site preparation and construction activities would not proceed until remediation is completed to the satisfaction of SCEMD.</p> <p>Measure 12.1b: Remove and Dispose of Stained Soils. Before the start of any construction and as a condition of grading permits, the project proponent would retain a licensed contractor to remove and properly dispose of all stained soil in accordance with the appropriate disposal facilities requirements as well as federal, state, and local regulations.</p> <p>Measure 12.1c: Remove On-Site Debris. Before the start of any construction and as a condition of grading permits, the project proponent would retain a licensed contractor to remove and properly recycle or dispose debris from the project site. If soil staining is observed after the removal of debris, soils would be removed and disposed of in accordance with federal, state, and local regulations.</p> <p>Measure 12.1d: Evaluate Pole-Mounted Transformers for the Presence of Polychlorinated Biphenyls (PCBs). Before the start of any construction, the project proponent would contact the Sacramento Municipal Utility District (SMUD) to assess the contents of the existing pole-mounted transformers located on the project site. SMUD would conduct an assessment and provide a letter stating whether existing electrical transformers on the site contain PCBs and whether any records of spills exist from such equipment. If SMUD identifies PCB-containing equipment, the maintenance or disposal of the transformer would be subject to the regulations of the Toxic Substances Control Act under the authority of SCEMD.</p>	S/LS	S/LS	S/LS	LS
Impact 12.2: Exposure to Asbestos and Lead-Based Paint	None	LS	LS	LS	LS
Impact 12.3: Use, Storage, and Transport of Hazardous Materials On-Site	None	LS	LS	LS	LS

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Impact 12.4: Potential Exposure to Contaminated Groundwater	None	LS	LS	LS	LS
Impact 12.5: Exposure to Electromagnetic Fields	None	LS	LS	LS	LS
Impact 12.6: Potential Human Health Hazards Associated with Mosquito-Borne Diseases	<p>For Alternatives A, B and C:</p> <p>Measure 12.6: Develop and Implement Site-Specific Mosquito Management Guidelines. Before the start of any construction activities, the project proponent would develop a set of site-specific Mosquito Management Guidelines in coordination with the Sacramento-Yolo Mosquito and Vector Control District. This plan(s) would include applicable prevention and control measures and address created mosquito vector habitat (e.g., storm drainage features). Prevention and control measures within the program may include, but not be limited to, the use of biological controls (natural predators) in standing water features, provision of outreach and educational information on vectors to homeowners, and use of storm drainage features that are self-draining. The guidelines would be submitted to Sacramento County for review and approval. The project proponent would implement the approved guidelines before the start of construction activities and during construction as specified in the guidelines.</p>	S/LS	S/LS	S/LS	LS
Impact 12.7: Airport Hazards	None	LS	LS	LS	LS
Impact 12.8: Potential Exposure of People or Structures to Wildland Fires	None	LS	LS	LS	LS
SECTION 4.13. Noise					
Impact 13.1: Construction Noise	<p>For Alternatives A, B and C:</p> <p>Measure 13.1a: Avoid Noise-sensitive Hours. In order to avoid noise-sensitive hours of the day and night, construction contractors would comply with the following:</p> <ul style="list-style-type: none"> Construction activities would be limited to the daytime hours from 6 a.m. to 8 p.m., Monday through Friday, and 7 a.m. to 8 p.m. on Saturday and Sunday. <p>Measure 13.1b: Alert Public of Construction. To further address potential nuisance impacts of construction, construction contractors would implement the following:</p> <ul style="list-style-type: none"> Signs would be posted at all construction site entrances upon commencement of construction, for the purposes of informing all contractors/subcontractors, their employees, agents, material haulers, and all other persons at the construction sites, of the basic requirements of Mitigation Measures 13.1a through 13.1c. Signs would be posted at the construction sites that include permitted construction days and hours, a day and evening contact number for the job site, and a contact number in the event of problems. An onsite complaint and enforcement manager would respond to and track complaints and questions related to noise. <p>Measure 13.1c: Reduce Impacts to Sensitive Receptors. The project proponent would require construction contractors to implement the following measures when construction activity is in close</p>	S/LS	S/LS	S/LS	S/LS

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	<p>proximity to sensitive receptors:</p> <ul style="list-style-type: none"> Equipment and trucks used for construction would use the best available noise control techniques. Impact tools used for construction would be hydraulically or electrically powered wherever possible. Where use of pneumatic tools is unavoidable, a muffler on the compressed air exhaust would be used. External jackets on the tools would be used where feasible. Quieter procedures, such as use of drills rather than impact tools, would be used whenever feasible. Stationary construction noise sources would be located as far from adjacent receptors as possible, and they would be muffled and enclosed to the extent this does not interfere with construction purposes. 				
Impact 13.2: Operational Noise	<p>For Alternatives A, B and C:</p> <p>Measure 13.2a: Design to Reduce Noise Effects. The project proponent would ensure that all elements of the development comply with County Code. The proposed land uses would be designed so that on-site mechanical equipment (e.g., HVAC units, compressors, generators) and area-source operations (e.g., loading docks, parking lots, and recreational-use areas) are located as far as possible or shielded from nearby noise sensitive land uses to meet County noise standards.</p> <p>Measure 13.2b: Restrict Operations. The following activity restrictions would be implemented to reduce operational noise effects:</p> <ul style="list-style-type: none"> For maintenance areas located within 250 feet of noise-sensitive land uses, the operation of on-site landscape maintenance equipment would be limited to the least noise-sensitive periods of the day, between the hours of 6 a.m. to 8 p.m., Monday through Friday, and 7 a.m. to 8 p.m. on Saturday and Sunday. Any outdoor use of amplified sound systems would be designed to comply with County Code requirements. 	S/LS	S/LS	S/LS	LS
Impact 13.3: Traffic Generated Noise	None	LS	LS	LS	LS
SECTION 4.14. Aesthetics					
Impact 14.1: Degradation of Existing Visual Character	<p>For Alternatives A, B and C:</p> <p>Measure 14.1: Landscaping Plans. To reduce the impact of the urban, built environment on local views, landscaping plans would be developed for the University Village/Residential and Sports Complex land uses that would include vegetated setbacks along Kiefer Boulevard and Eagles Nest Road. The landscaping plan would be developed in accordance with Sacramento County's Landscaping Improvement Standards and other applicable design guidelines. The setback area would be planted with native, drought tolerant species common to the region where possible.</p>	S/LS	S/LS	S/LS	LS
Impact 14.2: New Sources of Light and Glare	<p>For Alternatives A, B and C:</p> <p>Measure 14.2: Limit Fugitive Light and Implement a Lighting Plan. A lighting plan would be implemented and include the following measures to the maximum extent feasible:</p>	S/LS	S/LS	S/LS	LS

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	<ul style="list-style-type: none"> Exterior light fixtures would have minimized height and maximum spacing for safety, to reduce backscatter into the nighttime sky and incidental spillover of light into adjacent properties. Exterior lighting would be low-intensity and only used where necessary for safety and security purposes. Wherever possible, automatic shutoffs or motion sensors would be used for lighting features All nighttime lighting would be downcast and shielded Flood or area lighting needed for nighttime sporting activities would be located to avoid disturbing adjacent residential areas and passing motorists. Light fixture mountings would have non-glare finishes. 				
SECTION 4.16.3 Cumulative Effects					
Impact 16.1: Loss of Mineral Resources	None	LS	LS	LS	LS
Impact 16.2: Operation Period Water Quality Degradation	None	S	S	S	S
Impact 16.3: Changes in Drainage and Flooding Patterns	For Alternatives A, B and C: Implement Measure 3.3: Comprehensive Drainage Plan.	S/LS	S/LS	S/LS	LS
Impact 16.4: Effects from Operational Emissions	For Alternatives A, B and C: Implement Measure 4.2: Develop and Implement an Air Quality Mitigation Plan.	S/S	S/S	S/S	S
Impact 16.5: Objectionable Odors	For Alternatives A, B and C: Measure 16.5: Reduce Odor Impacts from Sacramento Rendering Plant. If the Sacramento Rendering Company plant would be in operation during occupancy of proposed residential development, the following measures would be implemented: <ul style="list-style-type: none"> Residential land uses would be set back as far as possible from the boundary of the rendering plant. The deeds to all properties located within the project area that are within four miles of the rendering plant would be accompanied by a written disclosure from the transferor, in a form approved by the County, advising any transferee of the potential adverse odor impacts from nearby rendering operations. 	S/LS	S/LS	S/LS	LS
Impact 16.6: Effects from Greenhouse Gas Emissions	For Alternatives A, B and C: Measure 16.6: GHG Emission Control Measures. The project proponent would incorporate Green Building and Development Measures as listed in Appendix F. Each increment of new development within the project site requiring a discretionary approval from the County (e.g., proposed tentative subdivision map, conditional use permit), would demonstrate that GHG emissions from construction and operation would be reduced by 30 percent from business-as-usual 2020 emissions levels.	S/S	S/S	S/S	S

Legend: NI = No Impact; LS = Less-Than-Significant -impact; S = Significant

**TABLE ES-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Mitigation Measures	Original Impact / Residual Impact with Mitigation			
		Alternative A	Alternative B	Alternative C	Alternative D
Impact 16.7: Climate Change Impacts	None	LS	LS	LS	LS
Impact 16.8: Effects to Federally Listed Vernal Pool Species and Critical Habitat	For Alternatives A, B and C: Implement Measure 3.3: Comprehensive Drainage Plan; Measure 5.1a: Compensate for the Loss of Habitat for Vernal Pool Species; Measure 5.1b: Use Best Management Practices to Provide Effective Erosion and Sediment Control; Measure 5.1c: Conduct Worker Environmental Awareness Training ; Measure 5.1d: Limit Project Access Routes/Staging Areas; and Measure 5.1e: Protect Preserved and Avoided Habitats.	S/S	S/S	S/S	LS
Impact 16.9: Effects to Special-Status Species	For Alternatives A, B and C: Implement Measure 5.3: Mitigate for Impacts to VELB and its Habitat; Measure 5.5: Perform Pre-construction Surveys for Western Spadefoot; Measure 5.6: Perform Pre-construction Surveys for Western Pond Turtle; Measure 5.7a: Avoid Active Nesting Season; Measure 5.7b: Conduct Pre-construction Nesting Bird Surveys; Measure 5.7c: Avoid Active Bird Nest Sites; Measure 5.9a: Perform Pre-construction Surveys for Special-Status Plants; and Measure 5.9b: Compensate for the Loss of Special-Status Plant Populations.	S/S	S/S	S/S	LS
Impact 16.10: Effects to Wetlands and Other Waters of the U.S.	For Alternatives A, B and C: Implement Measures 5.1a: Compensate for Loss of Vernal Pool Habitat, Measure 5.1b: Use Best Management Practices to Provide Effective Erosion and Sediment Control, Measure 5.1c: Conduct Worker Environmental Awareness Training, Measure 5.1d: Limit Project Access Routes/Staging Areas, Measure 5.1e: Protect Preserved and Avoided Habitats and Measure 6.1: Fully Compensate for the Loss of Waters of the U.S.	S/S	S/S	S/S	LS
Impact 16.11: Consistency with Growth Assumptions and Increases in Housing Demand	None	LS	LS	LS	LS
Impact 16.12: Sacramento County Intersection and Roadway Performance	For Alternatives A, B and C: Implement Measure 9.1: Intersection Improvements.	S/LS	S/LS	S/LS	LS
Impact 16.13: City of Rancho Cordova Intersection and Roadway Performance	For Alternatives A, B and C: Measure 16.13: Contribute to City of Rancho Cordova Intersection Improvements for Cumulative Impacts. The project proponent would provide contributions for improvements to the following City of Rancho Cordova roadway network facilities for cumulative impacts (see Appendix E for specific improvements): <ul style="list-style-type: none">• Bradshaw Road and Old Placerville Road• Routier Road and Old Placerville• Mather Field Road and Rockingham Drive• Zinfandel Drive and White Rock Road• Sunrise Boulevard and Douglas Road• Zinfandel Drive and Douglas Road	S/S	S/S	S/S	LS

Legend: NI = No Impact; LS = Less-Than-Significant -impact; S = Significant

**TABLE ES-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Mitigation Measures	Original Impact / Residual Impact with Mitigation			
		Alternative A	Alternative B	Alternative C	Alternative D
	<ul style="list-style-type: none"> • Zinfandel Drive and Chrysanthy Boulevard • Rancho Cordova Boulevard and White Rock Road • Mather Boulevard and Douglas Road 				
Impact 16.14: Caltrans Intersection and Roadway Performance	<p>For Alternatives A, B and C:</p> <p>Measure 16.14: Contribute to Caltrans Roadway Facility Improvements. The project proponent would provide contributions to convert the eastbound right turn lane into a free right lane by installing a right turn channelizing island at Zinfandel Drive and US-50 Eastbound Ramps</p>	S/S	S/S	S/S	LS
Impact 16.15: Increased Demand on Public Services, Utilities, Schools and Recreation Facilities	None	LS	LS	LS	LS
Impact 16.16: Potential Human Health Hazards Associated with Mosquito-Borne Diseases	<p>For Alternatives A, B and C:</p> <p>Implement Measure 12.6: Develop and Implement Site-Specific Mosquito Management Guidelines.</p>	S/LS	S/LS	S/LS	LS
Impact 16.17: Traffic Generated Noise	None	LS	LS	LS	LS
Impact 16.18: Airport Noise Impacts on Proposed Development	None	LS	LS	LS	LS
Impact 16.19: Degradation of Existing Visual Character and New Sources of Light and Glare	<p>For Alternatives A, B and C:</p> <p>Implement Measure 14.1: Landscaping Plans and Measure 14.2: Limit Fugitive Light and Implement a Lighting Plan.</p>	S/S	S/S	S/S	LS

Legend: NI = No Impact; LS = Less-Than-Significant -impact; S = Significant

CHAPTER 1.0

Purpose and Need

1.1 Introduction

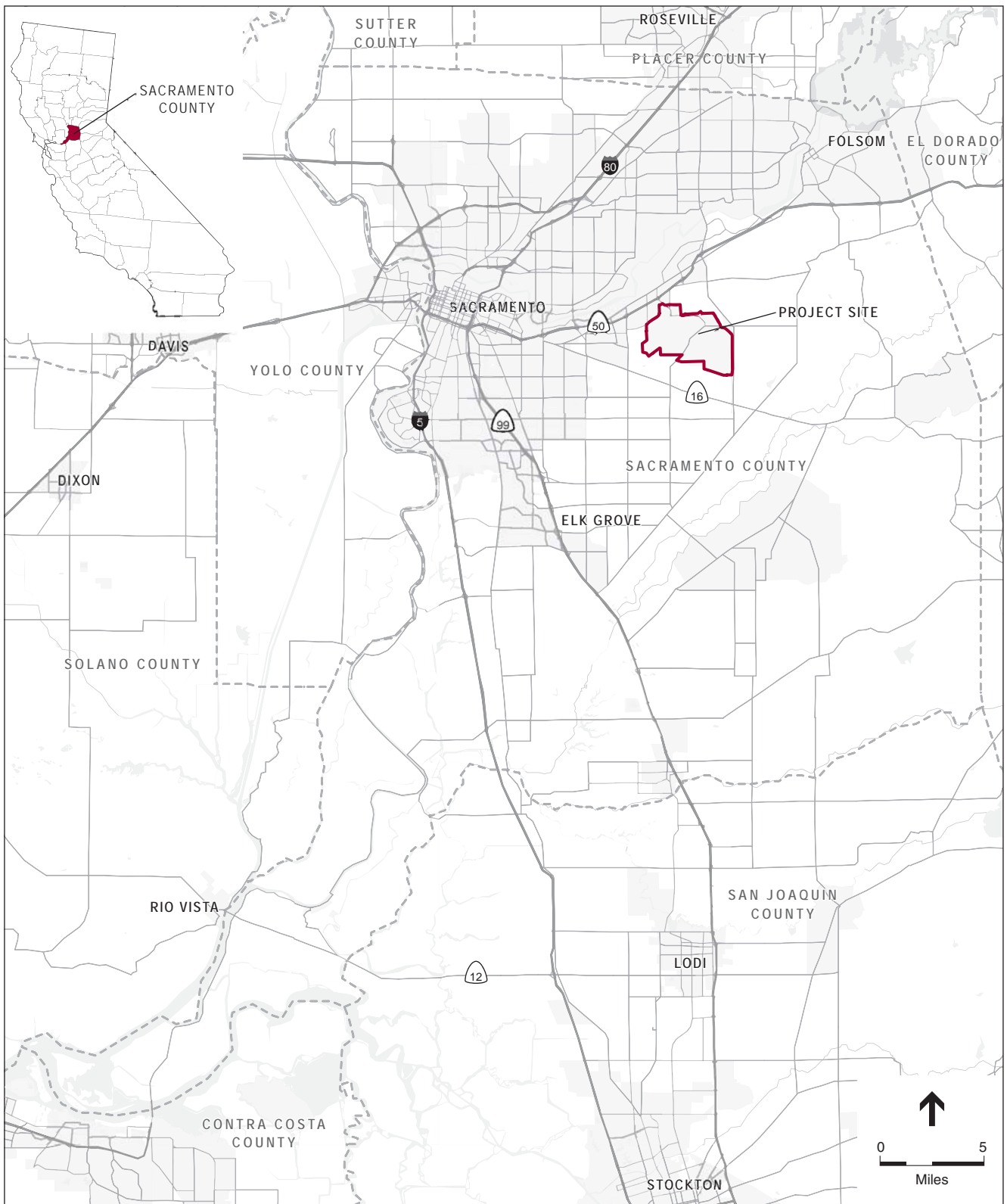
The National Environmental Policy Act (NEPA) requires the preparation of an Environmental Impact Statement (EIS) for major federal actions that may significantly affect the human environment. This Draft EIS has been prepared by the U.S. Army Corps of Engineers (USACE), Sacramento District for the Mather Specific Plan (“Plan”) project. The proposed action under NEPA is the USACE consideration of authorization of the Applicant’s Preferred Alternative pursuant to Section 404 of the Clean Water Act.

The Sacramento County (County) Office of Economic Development and Marketing, as the Applicant, submitted to the USACE seven separate permit applications for implementation of the Plan (i.e., the Applicant’s Preferred Alternative). Each application covers one of the seven different proposed land uses within the boundaries of the Mather Specific Plan including airport commercial, commercial development, “economic development” i.e. aggregate extraction, university village/residential, parks/recreation, regional sports park, and infrastructure. The applications describe for each proposed land use the types and amount of dredged or fill material that are proposed to be discharged into waters of the U.S. as a result of the development of the Applicant’s Preferred Alternative. The County has also notified the USACE that it may transfer the non-infrastructure land use permits, if and when issued, to other entities.

This document evaluates the potential impacts to the human environment that may result from implementing the Applicant’s Preferred Alternative and other alternatives. The EIS also addresses potential mitigation measures that may reduce or avoid significant adverse impacts. This Draft EIS has been prepared pursuant to NEPA (42 US Code §4321 et seq.); the Council on Environmental Quality Regulations for Implementing NEPA (40 Code of Federal Regulations [CFR] Parts 1500-1508); USACE NEPA regulations (33 CFR Part 230); and Implementation Procedures for the USACE Regulatory Program (33 CFR Part 325, Appendix B).

1.2 Project Location

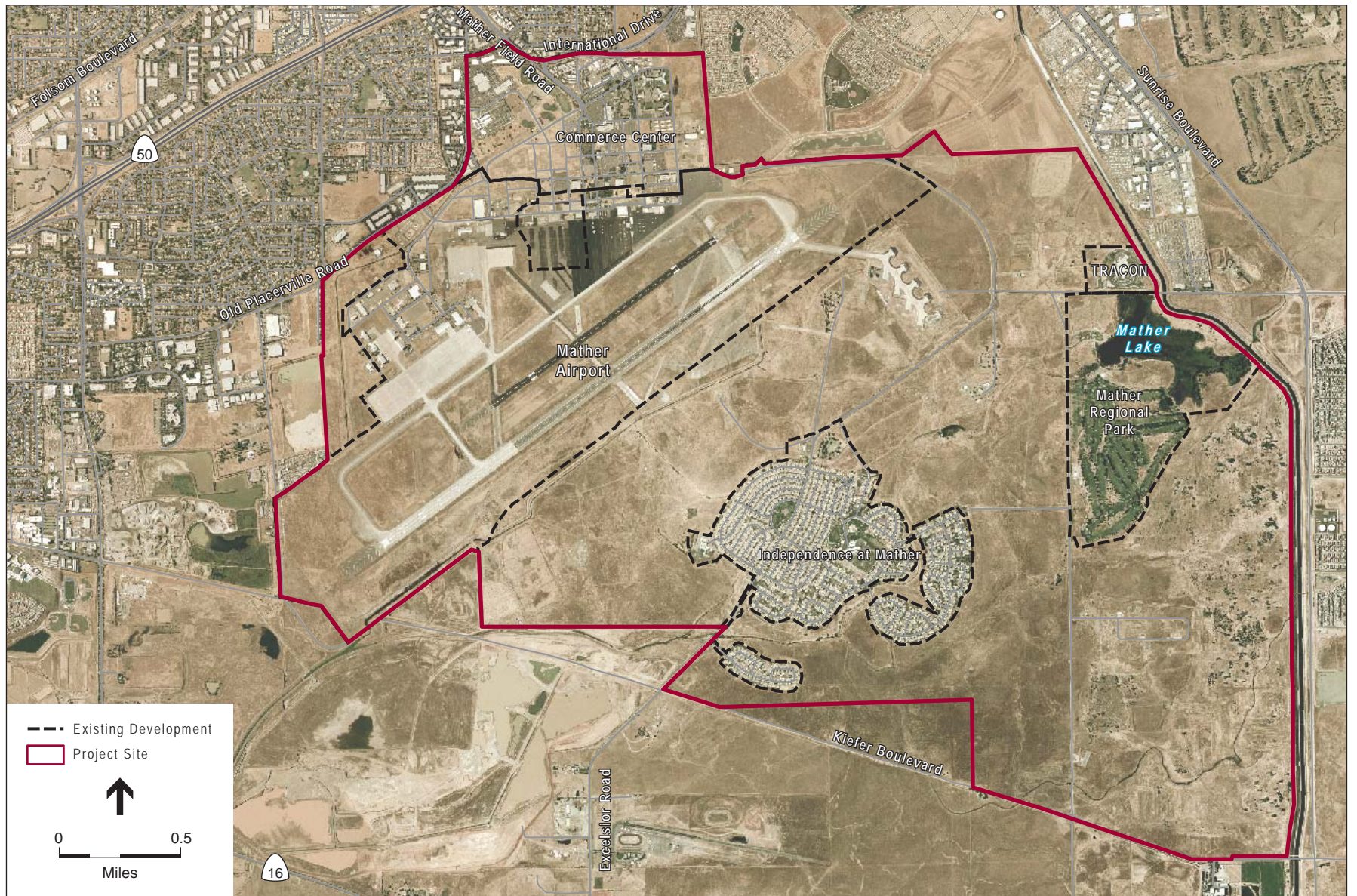
The land within the boundaries of the Mather Specific Plan (hereafter referred to as the “project site”) includes approximately 5,749 acres in eastern Sacramento County, California. A regional location map is provided as **Figure 1-1**. An aerial photograph of the project site is provided as **Figure 1-2**. The project site is generally bounded by Mather Road to the north, the Folsom South Canal to the east, Kiefer Boulevard to the south, and Old Placerville Road/Happy Lane to the west. The project location corresponds to Sections 10-16, 23, 24, Township 8 North, Range 6 East, and Sections 18 and 19, Township 8 North, Range 7 East, Mount Diablo Base & Meridian.



SOURCE: DeLorme Street Atlas USA, 2000; and ESA, 2010

Mather Specific Plan Project Draft EIS . 209259

Figure 1-1
Regional Location



SOURCE: NAIP, 2009; and ESA, 2010

Mather Specific Plan Project Draft EIS . 209259

Figure 1-2
Project Location

1.3 Background

1.3.1 Mather Specific Plan History

Mather Air Force Base (AFB) was established in 1918 as an airfield and pilot training school through an agreement between the Sacramento Chamber of Commerce and the federal government. Following World War I, the base was used to support small military units and as a terminal for aerial forest patrol and air mail service planes. The base closed in 1923, but was reactivated in 1941 when it was used as a flight training base. By the end of World War II, Mather AFB was used for pilot, navigator, observer, and bombardier training and was a stopover for aircraft traveling to and from the Pacific. In 1958, the Strategic Air Command B-52 wing was assigned to Mather AFB until deactivated in 1989. After World War II, Mather AFB became the sole aerial navigation training school for the U.S. Air Force. Approximately 30 allied nations also received basic navigation instruction at Mather AFB. Most base development occurred between 1941 and 1970, with expansion and improvements occurring through the 80s. The base was approved for closure in January of 1989. On October 1, 1993, Mather AFB was decommissioned as an active base under the Base Realignment and Closure Act of 1990.

The Air Force completed an EIS for the Disposal and Reuse of Mather AFB. The Air Force issued a Record of Decision (ROD) in March of 1993. A Supplemental ROD was issued in November of 1994, a Revised Supplemental ROD was issued in October 1995, and a Third Supplemental ROD was issued in May of 1998. The ROD and supplements determined the disposition of property and facilities at Mather AFB. The documents specifically identify the organizations and agencies to receive property and facilities and the means of property conveyance. The protection of biological and aquatic resources is also addressed in the Supplemental ROD, which states:

“unless Sacramento County and the appropriate federal regulatory agencies, including but not limited to EPA Region IX, U.S. Fish and Wildlife Service, and the U.S. Army Corps of Engineers, enter into agreements to protect the wetlands and endangered species prior to the conveyance by deed ... the [County] will manage the area consistent with a management plan approved by appropriate federal and state regulatory agencies, including but not limited to EPA Region IX, U.S. Fish and Wildlife Service, California Fish and Game, and the U.S. Army Corps of Engineers, to protect vernal pools, wetlands, and endangered species” (U.S. Air Force, 1994).

At the time of closure most of the base was determined surplus to the needs of the federal government and transferred or leased to various entities. A summary of these land transfers and leases is included in **Table 1-1**. All of the areas proposed for development under the Applicant’s Preferred Alternative and other alternatives are located within the boundaries of the former Mather AFB.

**TABLE 1-1
MATHER AIR FORCE BASE LAND TRANSFER AND LEASE SUMMARY**

Agency / Land Use	Total Acres*
Land Transferred from U.S. Air Force	
Rancho Cordova Parks and Recreation	35
U.S. Department of Veterans Affairs / Hospital	28
Sacramento Housing and Redevelopment Agency / Base Housing Complex	35
Sacramento Housing and Redevelopment Agency / Independence at Mather	320
Private / Churches	18
Mather Credit Union	1
Federal Aviation Administration / TRACON	32
Folsom-Cordova Unified School District	24
Sacramento Office of Education	15
National Guard	31
Sacramento County / Golf Course	174
Sacramento County / Economic Development Conveyance	716
Leased from U.S. Air Force	
Sacramento County / Airport	2,775
Sacramento County / Mather Regional Park	1,485

*All totals approximate. This table does not represent all areas within the project site as the project site boundary is slightly different than that of the former Mather AFB. Additionally acreages have been refined by GIS for the current project site.
SOURCE: Balazs, personal communication, 2010.

After the base was recommended for closure, Sacramento County began the planning process to adopt a Specific Plan for the area. Planning for the project site has gone through several phases. From 1989 to 1991 the Sacramento Commission on Mather Conversion (SACOMC) analyzed numerous use alternatives for consideration by the Board of Supervisors and recommended retention of the airport, reuse of other base facilities and redevelopment of other portions of the base. Upon receiving the recommendations, the Board of Supervisors established the Mather Internal Study Team (MIST). MIST's goals were to refine and further evaluate SACOMC's recommendations and further examine aviation and nonaviation reuse options. MIST recommended a reuse plan which also featured retention of the airport and mixed-use development surrounding the airport. In the fall of 1991, the Board of Supervisors endorsed the MIST plan and forwarded it to the Air Force Base Conversion Agency (AFBCA) for consideration in its preparation of the EIS and ROD for the disposal of the base. In May 1995, 4,012 acres of the former AFB were designated as a redevelopment area by the Sacramento County Board of Supervisors. Most of the project site is designated as a redevelopment area with the exception of the southeast corner. A Specific Plan (entitled the Mather Field Specific Plan) was adopted by the Sacramento County Board of Supervisors in May of 1997. The planning document lays out the envisioned transition of the former Mather AFB from military to civilian activities.

In March of 1999, the U.S. Fish and Wildlife Service (USFWS) issued a Biological Opinion (BO) relating to water service contracts (Water Contract) that deliver water out of the Sacramento River for use within Sacramento County Water Agency's Zone 40 Service Area, which includes the project site. The Board of Supervisors approved the Water Contract, thereby agreeing to the BO

conditions. The BO requires the development of a vernal pool management plan and dedication of conservation easements over vernal pools on the County airport and park properties within the project site, consistent with the Air Force Supplemental ROD (1994).

In April 2004, the Sacramento County Board of Supervisors conceptually endorsed creation of a “Wetlands Preserve” within the project site. The Board directed staff to work with stakeholders to develop a plan for creating the Wetlands Preserve and for addressing other uses, including roadways, economic development, parks, and easement restrictions for conservation and resource protection. In June 2005, stakeholders, representing thirteen outside entities, and seven county departments met to develop alternatives for boundaries of the Wetlands Preserve and to identify other vernal pools to be protected. The group also discussed the alignments of Eagles Nest and Douglas Roads. In February 2006, the Sacramento County Board of Supervisors approved Resolution No. 2006-0209 and the associated Board letter which conceptually endorsed a revised land use plan for the Mather Specific Plan area (Sacramento County, 2006). Subsequent to Board approval of the conceptual land use plan, the Sacramento County Office of Economic Development and Marketing submitted seven permit applications to the USACE to develop the project site. These permit applications include changes from the 2006 conceptual land use plan, including the removal of some “protected areas” and the enlargement of the proposed Preserve.

1.3.2 Existing Uses

An aerial photograph of the project site and vicinity is shown on **Figure 1-2**. Over 2,000 acres are currently developed within the project site. These existing uses include Mather Airport, a commerce center and various other uses north of the airport runway, Federal Aviation Administration’s Northern California Terminal Radar Control (TRACON) facility, Mather Regional Park, and Independence at Mather, a residential development of single-family homes.

The airport was reopened as Sacramento Mather Airport, a public-use air cargo and general aviation airport, in May 1995. Most all-cargo carriers operating at Sacramento International Airport relocated to Mather Airport after its opening. The airport is leased by Sacramento County and operated by the Sacramento County Airport System; it includes two parallel runways and an air cargo ramp space. In addition to air cargo service and general aviation aircraft uses, there are maintenance shops, storage buildings, offices, fuel stations, warehouses and education/training facilities at the airport.

North of the airport runway are various government and commercial facilities, the majority of which were constructed when the site was an active AFB. This area includes Mather Commerce Center with office space, industrial space, medical facilities, and education and retail space. The area includes the U.S. Department of Veteran Affairs Medical Center, which was converted from the former U.S. Air Force Hospital, as well as various County offices.

The Northern California TRACON facility, located just north of Mather Lake provides air traffic control service for major airports in northern California including San Francisco Bay airports, the Monterey/Salinas area, Stockton/San Joaquin Valley and the Sacramento Valley.

Within the eastern portion of the project site is Mather Regional Park, which includes Mather Lake and a public 18-hole golf course. Near the center of the project site is Independence at Mather, a modern residential housing subdivision, which was redeveloped in the location of former AFB housing. Independence at Mather includes 1,271 single-family homes.

The remainder of the project site is currently undeveloped open space. An old landing field containing three parachute landing areas is located just west of the golf course. Sacramento Splash, a non-profit educational organization, provides tours of vernal pools in the open space area for school children and the general public. The Mather Aerospace Modelers utilize a portion of the project site, including a model airplane runway, just east of Eagles Nest Road and approximately 2,000 feet north of Kiefer Boulevard.

1.4 Purpose and Need

NEPA regulations (40 CFR §1502.13) require that an EIS contain a statement of the purpose and need which “shall briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives, including the proposed action.” The Sacramento County Office of Economic Development and Marketing, as the Applicant, has submitted applications to USACE for permits under Section 404 of the Clean Water Act for the fill of wetlands and other waters of the U.S. within the project site. The Applicant indicates that the project is needed to provide for a sustainable economic development in the Mather Specific Plan area while concurrently maintaining and expanding existing recreation opportunities and conservation goals.

The Applicant has stated that development of economic opportunities within the unincorporated areas of the County is needed to generate revenue for the County, which provides services for County residents and visitors. The General Plan Land Use Element contains the objective to provide “[v]iable commercial services and a diversity of employment opportunities located in proximity to residents” and that it is the “intent of Sacramento County to provide a variety of locations for future commerce and industry to attract business and balance the economy” (Sacramento County, 2011). The Economic Development Element lists several development opportunities which could make substantial contributions to the local and regional economy including, but not limited to: air service, new commercial and industrial businesses, higher education opportunities, and athletic and recreational opportunities. The Applicant has indicated that their Preferred Alternative would aid in fulfilling these objectives outlined in the General Plan. Additionally, it has been assumed that economic development, park and airport properties at Mather would contribute funding to the management and maintenance of an on-site wetland preserve (Sacramento County, 2006).

Areas near Highway 50 in eastern Sacramento County provide economic opportunities for the County as Highway 50 is located near existing employment and housing centers and infrastructure. The Highway 50 corridor is Sacramento’s second-largest growth and employment center after downtown Sacramento, which has grown from infill development (Sacramento County, 2003). The Highway 50 corridor is attractive to businesses, as the area has direct freeway access to a local market of two million people with an additional market of over nine million people within a 90-mile radius

(Sacramento County, 2003). The Mather Specific Plan area is located in proximity to Highway 50 and due to the existing aviation infrastructure “Mather can contribute to the diversification of the regional economy by attracting new uses and jobs that might otherwise locate elsewhere” (Sacramento County, 1997). The development goals and land use designations defined in the Mather Field Specific Plan provide the mechanism for conversion of Mather Field from a military institution to an economic agent for the Highway 50 corridor.

Open spaces containing parks, recreational opportunities, and habitat conservation have also been identified as a need to enhance the value of economic developments and meet regional conservation needs. There is a need to implement conservation strategies in the Sacramento region for the protection of habitat for sensitive plant and animal species. The Conservation Element of the County General Plan contains the goal to “[p]reserve and enhance self-sustaining vernal pool habitats” and the objective to “[e]stablish vernal pool preserves that enhance and protect the ecological integrity of vernal pool resources” The General Plan states “[t]he rate and momentum of present and anticipated future urban growth have created a need for regional plans designed to ensure the perpetuation of vernal pools and other wetland habitats” (Sacramento County, 2011).

The conservation of vernal pools and other wetland habitats are of particular focus in eastern Sacramento County. The USFWS Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon delineates the Southeastern (SE) Sacramento Valley Vernal Pool Region, which contains two core areas in eastern Sacramento County, the Mather Core Area and the Cosumnes/Rancho Seco Core Area. The Recovery Plan states that the SE Sacramento Vernal Pool Region contains the greatest number of known occurrences of federally-threatened vernal pool fairy shrimp and federally-endangered vernal pool tadpole shrimp and that both species are threatened by urban development (USFWS, 2005). In response to urban growth and as encouraged within the “Fazio Water” 101-514 water contract Biological Opinion, Sacramento County, along with the cities of Elk Grove, Galt, Rancho Cordova, and other partners, is developing the South Sacramento Habitat Conservation Plan.

Furthermore, as described in Section 1.3, Background, Sacramento County has been involved in the redevelopment of the project site and the transition of the Mather AFB from military to civilian ownership since 1989. A basic premise of the transfer is reuse of the former AFB, including recreational and economic reuse of lands transferred to the County. Therefore, there is a need to specifically examine potential reuse options within the Mather Specific Plan area, and development of areas outside of the Specific Plan area would not meet this basic purpose. Given this information, USACE has determined that the overall project purpose is:

A large scale, mixed use development to promote economic and wetland conservation opportunities within the Mather Specific Plan area.

Per 40 CFR §1502.13, the stated purpose and need has guided the development of the alternatives presented in **Chapter 2.0**.

1.5 Clean Water Act Section 404(b)(1) Guidelines

The proposed action under NEPA is the USACE consideration of authorization under Section 404 of the Clean Water Act of the Applicant's Preferred Alternative. The Applicant submitted applications to USACE for permits under Section 404 of the Clean Water Act for the fill of approximately 34.27 acres of wetlands and other waters of the U.S. within the project site. Since the submission of the applications, the amount of proposed fill has been corrected to 40.25 acres. This change from the original proposals is due to refinements in the Applicant's GIS data, a revision to the proposed alignment of Eagles Nest Road, and a revised jurisdictional delineation which identified additional and expanded jurisdictional features in areas proposed for development. The Corps must apply the Environmental Protection Agency's (EPA) *Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material* (40 CFR Part 230) (hereafter referred to as Section 404(b)(1) Guidelines) when evaluating applications for discharges into waters of the U.S. under the Clean Water Act.

The Section 404(b)(1) Guidelines prohibit the discharge of dredged or fill materials to waters of the U.S. if there is a "practicable alternative to the proposed discharge that would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse consequences" (40 CFR §230.10a). An alternative is "practicable" if it is "available and capable of being done after taking into consideration cost, existing technology and logistics in light of overall project purposes" (40 CFR §230.10(a)(2)). Practicable alternatives include activities that do not involve a discharge of fill into waters of the U.S. or involve a discharge at other locations in waters of the U.S. An area not "presently" owned by an applicant may be considered as an alternative discharge location if it could be reasonably "obtained, utilized, expanded, or managed to fulfill the basic purpose of the proposed action" (40 CFR §230.10(a)(2)).

If the proposed activity would involve a discharge into a special aquatic site such as a wetland, the Section 404(b)(1) Guidelines distinguish between those projects that are water dependent and those projects that are not. The Applicant's Preferred Alternative is not water dependent, as none of the basic purposes (e.g., development, infrastructure) are water dependent. The Section 404(b)(1) Guidelines establish two "presumptions" for non-water dependent projects that propose a discharge into a special aquatic site: 1) that a practicable alternative is available that does not involve discharging into a special aquatic site; and 2) that all practicable alternatives to a proposed discharge which do not involve a discharge into a special aquatic site would have less adverse impacts to aquatic resources. The applicant has the burden of clearly demonstrating that these presumptions do not apply in a particular case (40 CFR §230.10(a)(3)).

The Section 404(b)(1) Guidelines have substantive requirements in addition to the "practicable alternative" standard. These include prohibiting discharges that cause or contribute to violation of water quality standards, violate any toxic effluent limit under Section 307 of the Clean Water Act, or jeopardize the continued existence of any threatened or endangered species or destroy or modify its critical habitat (40 CFR §230.10(b)). If a federally-listed threatened or endangered species may be affected by a project, then the USACE is required to consult with the USFWS and/or National Marine Fisheries Service, pursuant to 33 CFR §320.3 and Section 7 of the

Endangered Species Act. The Section 404(b)(1) Guidelines also prohibit any discharge that causes or contributes to significant degradation of the waters of the U.S.

Prior to issuing a permit, the USACE will make a series of factual determinations with respect to the least environmental damaging practicable alternative (LEDPA) based on the criteria contained in 40 CFR Part 230. The criteria include both direct and indirect impacts to aquatic resources, impacts to endangered species, impacts to other significant wildlife, and human use characteristics. The 404(b)(1) Guidelines prohibit USACE from authorizing any alternative except the LEDPA. This Draft EIS includes information regarding the Applicant's Preferred Alternative and alternatives that the USACE will use in making its determination of the LEDPA and factual determinations.

1.6 Agency Roles and Responsibilities

1.6.1 Lead and Cooperating Agencies

Some involved agencies have specific responsibilities identified by NEPA. The USACE, Sacramento District, is the lead federal agency under NEPA. USACE will use the EIS to make decisions regarding the Applicant's Preferred Alternative or alternatives.

Under NEPA, the lead agency may request other agencies which have jurisdiction or special expertise with respect to a particular issue to be cooperating agencies (40 CFR §1501.6). USACE invited several federal, state, and local agencies to participate as cooperating agencies. The EPA, Air Force, USFWS and Sacramento Metropolitan Air Quality Management District (SMAQMD) agreed to be cooperating agencies.

1.6.2 Permits and Other Approvals

The following list identifies the necessary permits and other actions required by federal, state and regional agencies for implementation of the Applicant's Preferred Alternative or alternatives.

1.6.2.1 Federal Actions/Permits

U.S. Air Force

The project site includes areas which have not been transferred from U.S. Air Force ownership. The Applicant's Preferred Alternative and other alternatives propose development within areas which are currently leased to Sacramento County by the U.S. Air Force. The 55-year lease began in 1993. It is likely that prior to the end of the lease that parcels would be transferred from federal ownership to Sacramento County or other entities by public benefit conveyance, sale, or other land transfer mechanism. If property has not been conveyed by the end of the lease then the lease may be extended, a new lease may be entered into, or the Air Force could sell the property on the open market.

U.S. Army Corps of Engineers

Sacramento County Office of Economic Development and Marketing (“Applicant”) has submitted seven separate permit applications for activities that propose the discharge of dredged or fill material into wetlands and other waters of the U.S. Department of the Army (DA) permits under Section 404 of the Clean Water Act are required for these discharges.

U.S. Environmental Protection Agency

Responsibility for administering and enforcing Section 404 is shared by the USACE and EPA. EPA reviews/comments on permit applications, enforces Section 404 provisions, and has authority to veto USACE permit decisions as set forth in the USACE/EPA Memorandum of Understanding. EPA is also responsible for reviewing, filing, and noticing the EIS.

U.S. Fish and Wildlife Service

USACE will consult with USFWS under Section 7 of the Federal Endangered Species Act. This is required for the issuance of a Biological Opinion and authorization for the incidental take of federally-listed endangered and threatened species that are expected to be affected.

1.6.2.2 State Actions/Permits

Central Valley Regional Water Quality Control Board (Region 5)

The Central Valley Regional Water Quality Control Board (RWQCB) requires a National Pollutant Discharge Elimination System construction stormwater permit (Notice of Intent to Proceed under General Construction Permit) for land disturbance of more than one acre. The RWQCB also requires a discharge permit for stormwater, a general order for dewatering, and Section 401 Clean Water Act certification and/or waste discharge requirements for discharges of dredged or fill material. The USACE requires the applicant to obtain Section 401 Water Quality Certification prior to issuance of a permit under Section 404 of the Clean Water Act.

California State Historic Preservation Officer

USACE will consult with the California State Historic Preservation Officer pursuant to Section 106 of the National Historic Preservation Act for potential impacts to historic and/or cultural resources.

California Department of Fish and Game (Sacramento Valley, Central Sierra Region)

CDFG requires a Streambed Alteration Agreement (Fish and Game Code Section 1602) for alterations to stream features regulated under state Fish and Game Code within the project site.

1.6.2.3 Regional and Local Actions/Permits

Sacramento County

Several County approvals, required prior to development of the Applicant's Preferred Alternative or alternatives, are listed below.

- Adoption of an updated Mather Specific Plan (Sacramento County Department of Environmental Review and Assessment is preparing a separate Environmental Impact Report to address the land use designation changes from the original 1997 Mather Specific Plan to comply with the California Environmental Quality Act).
- Approval of development agreements between the County and developers (if applicable).
- Approval of other future discretionary entitlements and permits (e.g., small-lot tentative subdivision maps, design review approvals, and/or use permits).
- Approval of off-site improvements within County rights-of-way, including transportation and utility infrastructure. County departments involved in approvals include, but are not limited to, the County Department of Transportation, County Department of Water Resources, and Sacramento Regional County Sanitation District.

Sacramento Metropolitan Air Quality Management District

The Sacramento Metropolitan Air Quality Management District (SMAQMD) requires any business or person to obtain an Authority to Construct and Permit to Operate (pursuant to SMAQMD Rule 201) before installing or operating new equipment or processes that may release or control air pollutants to ensure compliance with SMAQMD rules and regulations. A few examples of operations or equipment that usually require SMAQMD permits include gasoline stations, solvent cleaning (degreasers), auto body refinishing, and internal combustion engines. In addition, specific mitigation processes would require SMAQMD approval as well. These include any potential mitigation fees associated with construction as well as an Air Quality Mitigation Plan to reduce operational emissions.

1.7 Intended Use and Scope of Analysis

The use of the Draft EIS is based on the agency's approval authority. For this proposal, USACE has the principal responsibility for making permit decisions under Section 404 of the Clean Water Act and ensuring that the requirements of NEPA have been met prior to making permit decisions.

33 CFR Part 325, Appendix B, 7(b) states that the scope of the NEPA document should be established "to address the impacts of the specific activity requiring a USACE authorized permit and those portions of the entire project over which the district engineer has sufficient control and responsibility to warrant federal review." The scope of this document is further discussed in **Chapter 2.0**.

1.8 Type of EIS (Project and Program Level Analysis)

This EIS contains a project level analysis for proposed infrastructure components (primarily roadways and utilities that would be placed within them) and a program level analysis for other proposed land uses. It identifies performance standards (e.g., setbacks and other measures to protect biological resources) and mitigation measures that would apply to the Applicant's Preferred Alternative and alternatives. In addition, the analysis addresses the impacts of the Applicant's Preferred Alternative and alternatives. A reasonable range of alternatives is evaluated at an equal level of detail, including a No Permit Alternative (or No Action Alternative).

1.9 Overview of the NEPA Process

1.9.1 Notice of Intent

USACE published a Notice of Intent (NOI) in the Federal Register, Vol. 74, No. 237 on December 11, 2009, to inform agencies and the general public that a Draft EIS was being prepared and invited comments on the scope and content of the document (see **Appendix B**). The NOI also provided information on the date and time of the public scoping meeting. There is no mandated time limit to receive written comments in response to the NOI under NEPA and USACE informed the public that comments would be accepted until publication of this Draft EIS.

1.9.2 Scoping

USACE held a public scoping meeting to solicit input from interested parties on January 6, 2010 from 4 p.m. to 7 p.m. at 10590 Armstrong Avenue, in Mather, CA. Attendees were given the opportunity to ask questions and to provide written and oral comments. A scoping report was finalized in September 2010 and is included as **Appendix B**. The scoping report contains a copy of the NOI and written comments received.

Based on NEPA guidelines and the scoping undertaken, the Draft EIS includes an evaluation of the following issue areas:

- Aesthetics (Visual Resources, Light and Glare)
- Agriculture
- Air Quality and Global Climate Change
- Terrestrial Biological Resources
- Aquatic Resources
- Cultural and Historic Resources
- Socioeconomics and Environmental Justice
- Geology, Soils, and Mineral Resources
- Hazards and Hazardous Materials

- Hydrology and Water Quality
- Land Use
- Noise
- Public Services and Recreation (Police, Fire, Libraries, Schools, and Parks)
- Traffic and Transportation
- Utilities (Water, Wastewater, Solid Waste, Telecommunications and Energy)
- Indirect Effects, including Growth Inducement
- Cumulative Effects

1.9.3 Draft EIS

The Draft EIS is being distributed to interested agencies, stakeholder organizations and individuals. This distribution ensures that interested parties have an opportunity to express their views regarding the effects of the Applicant's Preferred Alternative and alternatives, and to ensure that information pertinent to permits and approvals is provided to decision makers.

This document is available for review by the public during normal business hours at the U.S. Army Corps of Engineers, Sacramento District, 1325 J Street, Room 1480, Sacramento, California 95814 and at the Rancho Cordova Library, 9845 Folsom Boulevard, Sacramento, California 95827. The Draft EIS is being circulated for a 45-day review period that will end on August 13, 2012.

Written comments postmarked no later than August 13, 2012, should be sent to the following address:

Kathleen Dadey
U.S. Army Corps of Engineers, Sacramento District
1325 J Street, Room 1350
Sacramento, California 95814
email: Kathleen.A.Dadey@usace.army.mil

If comments are provided via e-mail, please include the "Mather Specific Plan EIS" in the subject line, attach comments in MS Word format and include the commenter's address.

A public meeting on the Draft EIS will be conducted by USACE from 4 p.m. to 7 p.m. on July 25, 2012, in Main Conference Room A at 10590 Armstrong Avenue, Mather, California 95655.

Comments on the Draft EIS will be accepted at the meeting and a court reporter will be present to record verbal comments. Comments may also be submitted in writing throughout the comment period as described above.

1.9.4 Final EIS

Following public review of the Draft EIS, a Final EIS will be prepared in which USACE will provide responses to substantive comments on the Draft EIS and describe any revisions. The Final EIS will be made available for public review. After public review, USACE will decide on the action, if any, and publish a Record of Decision.

1.10 Standard Terminology, Acronyms, and Abbreviations

1.10.1 Standard Terminology

The following standard terminology is used in this Draft EIS:

- **Specific Plan** and **Plan** refer to the Mather Specific Plan.
- **Project site** refers to the 5,749 acres within the boundary of the Mather Specific Plan as depicted on **Figure 1-2**.
- **Action area** refers to the portions of the project site proposed for development or preservation under the alternatives described in this EIS. Excluded from the action area are the 2,554 acres associated with existing uses which are not currently proposed for additional development or preservation.
- **Applicant** refers to the Sacramento County Office of Economic Development and Marketing.

1.10.2 Acronyms and Abbreviations

Acronyms and abbreviations used in this Draft EIS are provided in **Appendix A**.

References

- Balazs, 2010. Personal communication (e-mail) from Rick Balazs (Sacramento County Office of Economic Development and Marketing) to Kathleen Dadey (U.S. Army Corps of Engineers) on April 23, 2010.
- National Agriculture Imagery Program (NAIP), 2009. Aerial photography imaging services.
- Sacramento County, 1997. Mather Field Specific Plan. May 1997.
- Sacramento County, 2003. Cordova Community Plan. Department. May 2003.
- Sacramento County, 2006. Department of Economic Development and Intergovernmental Affairs Report to the Board of Supervisors regarding the Initiation Of Mather-Related General Plan Amendments and Approval To Proceed With Application For Federal Wetland Fill Permits At South Mather.
- Sacramento County, 2011. Sacramento County General Plan. Land Use Element and Conservation Element. Adopted November 9, 2011.
- U.S. Air Force, 1994. Supplemental Record of Decision, Disposal and Reuse of Mather Air Force Base, Final Environmental Impact Statement. Prepared by Air Force Base Conversion Agency Northwest Division. October 1994.
- U.S. Fish and Wildlife Service (USFWS), 2005. Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon. Region 1. Portland, Oregon.

CHAPTER 2.0

Alternatives

2.1 Introduction

Consistent with the Council on Environmental Quality (CEQ) Regulations for Implementing the National Environmental Policy Act (NEPA) at Title 40 of the Code of Federal Regulations (CFR) §1502.14, this section includes a detailed discussion and comparison of the alternatives analyzed in this Draft Environmental Impact Statement (EIS).

The three alternatives evaluated at an equal level of detail in this Draft EIS include:

- Alternative A – Applicant’s Preferred Alternative
- Alternative B – 2006 Conceptual Land Use Plan Alternative
- Alternative C – Multiple Preserves Alternative
- Alternative D – No Permit Alternative (No Action)

The above alternatives were developed by the U.S. Army Corps of Engineers (USACE), Sacramento District in conjunction with the Applicant and review of the scoping comments received on the Notice of Intent. The alternatives were determined to meet the overall project purpose and need.

This chapter also includes a summary of other alternatives considered but determined impractical. Those alternatives include an East/West Preserve Alternative, Southern Preserve Alternative, and Expanded Aggregate Extraction Alternative.

2.2 NEPA Requirements for Alternatives

The CEQ Regulations for Implementing NEPA (40 CFR §1502.14) require that an EIS:

- Rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.
- Devote substantial treatment to each alternative considered in detail including the “proposed action” so that reviewers may evaluate their comparative merits.
- Include reasonable alternatives not within the jurisdiction of the lead agency.
- Include the alternative of “no action”.
- Include appropriate mitigation measures not already included in the “proposed action” or alternatives.

The alternatives evaluated in this document (Alternatives A through D) represent a reasonable range of alternatives. Alternatives which were eliminated from detailed study are discussed in **Section 2.7**.

2.3 Alternative A –Applicant’s Preferred Alternative

Alternative A, the Applicant’s Preferred Alternative, includes the development of a large-scale, mixed-use development within the Mather Specific Plan project site described in **Chapter 1.0, Section 1.2**. The Applicant’s Preferred Alternative requires permits from the USACE pursuant to Section 404 of the Clean Water Act for proposed fill of 40.25 acres of waters of the U.S. Additional entitlements required are listed in **Section 1.6.2**.

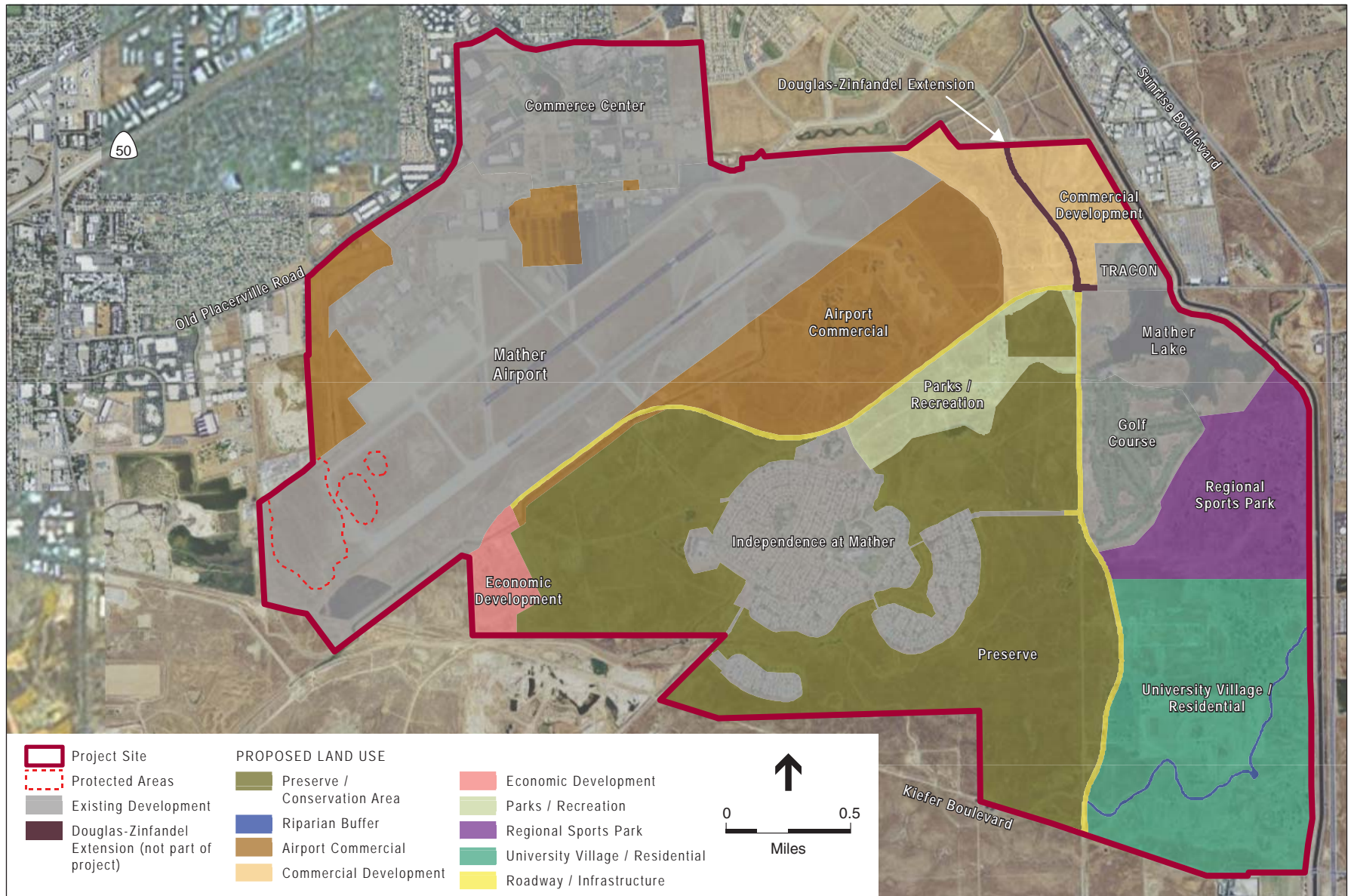
2.3.1 Proposed Land Uses

Proposed land uses in this alternative are summarized in **Table 2-1** and shown on **Figure 2-1**. This includes airport commercial, commercial, economic development (aggregate extraction), university village/residential, parks and recreation, regional sports park, and utilities and infrastructure. **Table 2-2** provides a description of the facilities that the Applicant has proposed within each land use area.

**TABLE 2-1
ALTERNATIVE A - LAND USES PROPOSED WITHIN THE PROJECT SITE**

Area	Acreage
Proposed Development	
Airport Commercial	601
Commercial Development	203
Economic Development (Aggregate Extraction)	60
University Village/Residential	577
Parks and Recreation	133
Regional Sports Park	271
Roadways/Infrastructure	65
Proposed Development Total	1,910
Open Space	
Preserve	1,272
Riparian Buffer	13
Proposed Open Space Total	1,285
Existing Development / Other	
Commerce Center	343
Douglas-Zinfandel Extension	11
Golf Course	154
Independence at Mather	400
Mather Airport	1,451
Mather Lake	163
Tracon	32
Existing / Other Total	2,554
Project Site Total	5,749

This table represents the total acreage for each land use category shown on Figure 2-1.
SOURCE: Sacramento County, 2012



SOURCE: NAIP, 2006; Sacramento County, 2012; and ESA, 2012

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Figure 2-1
Alternative A – Applicant’s Preferred Alternative

**TABLE 2-2
ALTERNATIVE A – PROPOSED FACILITIES WITHIN EACH LAND USE**

Land Use	Developed Acreage	Density	Building Area/Units
Airport Commercial			
Light Industrial	238.9	40%	4,162,594 sf
Airport Support	118.1	40%	2,057,774 sf
Subtotal	357		
Commercial Development			
Light Industrial	47.2	40%	822,413 sf
Commercial/Retail	42.0	35%	640,332 sf
Subtotal	89.2		
University Village/Residential			
University	175		
Low Density Residential	172.1	5 du/acre	860 du
Medium Density Residential	91.3	10 du/acre	913 du
High Density Residential	37.8	20 du/acre	757 du
Neighborhood Town Center	13		
Commercial	8		
Elementary School	11		
Park	31.5		
Subtotal	539.7		2,530 du
Regional Sports Park			
Sports Village	52		380,000 sf
Event Center	40		320,000 sf (5,000 outdoor capacity)
Sports Fields	181		175,000 sf
Subtotal	273		

This table represents the facility/building acreage that has been proposed within each land use category and thus does not represent the total acreage for each land use. Additional acreage within each land use category could be devoted to buffers, open space, landscaping, roadway infrastructure etc. which is not included within this table.

sf=square feet, du=dwelling units

SOURCE: Balazs, personal communication, 2010

2.3.1.1 Airport Commercial

The primary objective of the Airport Commercial area is to create an airport business park complex oriented to air cargo, aircraft maintenance, general aviation and airport support uses. Alternative A does not include changes to Mather Airport or airport operations. The Airport Commercial development could include aircraft maintenance facilities, facilities for manufacturing small to medium sized aircraft, aircraft sales, aircraft storage, public sector and private industrial and distribution centers, and facilities for aerial photography and survey companies. Developed facilities would include approximately 6,220,368 square feet of light industrial and warehouse space on 357 acres adjacent to and south of the existing Mather Airport runway. Construction is proposed to start in 2015 and be completed by approximately 2025. Approximately 480,000 square feet of space would be constructed per year.

2.3.1.2 Commercial Development

The Commercial Development area would consist of facilities in support of the airport development as well as general commercial facilities such as food and service industries and limited retail facilities. Developed facilities would include approximately 1,462,745 square feet of light industrial and commercial/retail uses on 89.2 acres. Construction is proposed to start in 2015 and be completed by approximately 2019.

2.3.1.3 Economic Development (Aggregate Extraction)

The Economic Development area contains valuable deposits of construction-grade aggregate. It is assumed that this area would be dedicated to an open pit aggregate mine of approximately 60 acres for approximately five years. From the ground surface approximately 10-15 feet of overburden would be stripped with scrapers. Aggregate would be mined with front-end loaders down to approximately 30 feet below the current ground surface. No permanent structures are proposed. Aggregate would be moved to processing centers via a temporary conveyor belt system. It is assumed that overburden would be stored on site. This area is bordered on the west and south by existing aggregate operations including conveyor systems and access roads.

2.3.1.4 University Village/Residential

The University Village/Residential area would include a university, mixed-density housing, retail, an elementary school and park. The university could entail a research and development campus to support businesses and institutions specializing in environmental remediation research and/or the conversion of military and defense technology to civilian, industrial purposes. The residential component would support a live/work campus environment.

Phase I of construction would include a 175-acre educational facility and approximately 122 acres of residential and retail development and is proposed to break ground in Spring 2015. The construction of Phase I would last approximately three years. Following completion of Phase I, Phase II would include the development of another 121 acres of mixed-use development including residential and retail development, over a three year period. Phase III would include the development of the remaining 121 acres mixed-use development, over a three year period. Construction is proposed to be completed by 2023.

2.3.1.5 Parks and Recreation

The Parks and Recreation area would provide passive recreation opportunities and developed recreation facilities that could serve the adjacent community. Such facilities might include walking/running/biking trails, soccer fields, baseball and softball fields, basketball courts, tennis courts, and turf areas for picnicking and other uses.

2.3.1.6 Regional Sports Park

The Regional Sports Park would provide a wide range of recreational opportunities that could serve the region, including organized sports, passive recreation, and commercial recreation, while

complementing and building on the scenic character of the existing and adjacent lake and golf course, reinforcing Mather as an attractive visitor destination for the region. The outdoor event center/stadium would have seating capacity for 5,000 people. It is assumed that this facility would be used for sports-related events and would not be utilized for concerts.

Phase I of construction would include primarily sports fields (baseball, softball, football, soccer, track, tennis). Phase I would be constructed from 2015 to 2020. The sports fields could be used as early as 2016 and build out would continue until 2020. Approximately 20 percent of the total sports fields would be built each year.

Phase II would consist of primarily event center facilities including swimming, diving, indoor training facilities, and a 5,000-seat stadium. Construction would begin in 2016, with swimming and indoor event facilities (volleyball, indoor training, workout facilities, classrooms). Phasing would include development of 10 - 20 percent of the facilities each year, over an eight year period. Construction of the 5,000 seat stadium is not envisioned to take place prior to 2018.

Phase III would consist of the development of a “Sports Village”. Conceptually this development would begin construction in 2018 with dorm housing units. Over a 10-year period, dorms, supporting retail, live/work spaces, lofts, condos and a hotel would be constructed.

2.3.1.7 Roadways/Infrastructure

The area associated with roadways and infrastructure would be maintained as right-of-way by the Sacramento County Department of Transportation. Proposed roadway modifications and public utility infrastructure are discussed in more detail in **Section 2.3.3** and **Section 2.3.4**.

2.3.1.8 Preserve

The 1,272-acre Preserve would provide protection for wetlands (including vernal pools) and endangered species. Several known occurrences of federally listed branchiopods and special-status plant species would be protected within the Preserve, including vernal pool fairy shrimp, vernal pool tadpole shrimp, and legenera. The Preserve would also protect federally listed critical habitat for vernal pool fairy shrimp, tadpole shrimp, slender Orcutt grass, and Sacramento Orcutt grass. The allowed uses would ultimately be prescribed by a Wetlands Management Plan (per the terms of the Supplemental Record of Decision discussed in **Section 1.3.1**). It is assumed for the purposes of the EIS that this area would not include active, public uses. Educational tours could also be allowed within the Preserve.

2.3.2 Grading and Drainage

It is anticipated that grading and drainage plans would be developed for each proposed development type and submitted to the Sacramento County Municipal Services Agency for review prior to construction. Drainage features would be designed and maintained in accordance with the Stormwater Quality Design Manual for Sacramento and South Placer Regions (Sacramento County, 2007).

2.3.3 Circulation

Modifications and extensions to existing roads within the project site are proposed as part of the infrastructure permit application. This includes the realignment and expansion of Eagles Nest Road (to be renamed as a continuation of Zinfandel Drive) and an extension of Douglas Road. In addition, the Douglas-Zinfandel Extension is located within the project site but is not part of Alternative A.

2.3.3.1 Eagles Nest Road

Currently, Eagles Nest Road is paved for 2.75 miles south of its intersection with Douglas Road and continues to the south as a graded dirt road. Under Alternative A, Eagles Nest Road would be modified from a two-lane to a four-lane road and would be paved from Douglas Road to Kiefer Boulevard for a total of 4.35 miles. The north end of Eagles Nest Road would be realigned to the east to intersect directly with the south end of the extension of Zinfandel Drive, and the realigned roadway would be renamed. The roadway would follow the current roadbed alignment for approximately two miles south and then would curve to the east to avoid habitat and increase Preserve acreage. It would then curve back to the west to match the existing alignment near the intersection with Kiefer Boulevard (**Figure 2-1**). The roadway construction would also expand three existing culverts at tributaries to Morrison Creek; one crossing is near the north end of the roadway and downstream of Mather Lake, the second is near the southern end of Mather Golf Course, and the final is immediately north of the intersection with Kiefer Boulevard. The culverts would be sized to accommodate storm flows. The roadway would be approximately 140 feet in width, including shoulders, and would drain to the east to minimize runoff into the proposed Preserve.

2.3.3.2 Douglas Road

Douglas Road from the Folsom South Canal west to Excelsior Road (at the north side of the Independence at Mather housing development), would be modified from a two-lane road to a 140-foot wide four-lane road. A traffic control device is proposed for the Douglas Road/Eagles Nest Road intersection.

2.3.4 Public Services and Utilities

Infrastructure, including water, wastewater, electricity, natural gas, and telecommunications, is proposed within roadway rights-of-way. These infrastructure extensions could serve the various land use areas of Alternative A.

2.3.4.1 Water Facilities

The project site is located in Sacramento County Water Agency's (SCWA's) Zone 40 within the North Service Area (NSA). The NSA includes Mather, the Sunrise Corridor, the Sunrise Douglas Community Plan Area and the Rio del Oro Specific Plan Area. Water service to Alternative A would be provided by SCWA's Zone 41, which is the retail water supplier for developments in

Zone 40. There is an existing distribution system on the project site which could be utilized, such as the 16-inch diameter transmission line which serves Independence at Mather and commercial development north of the airport. There are also 36-inch and 42-inch diameter transmission lines east of the project site and a Zone 40 tank and booster pump station near the Sunrise Boulevard/Douglas Road intersection which could be utilized to provide service to portions of Alternative A.

2.3.4.2 Wastewater Facilities

Wastewater treatment for Alternative A would be provided by Sacramento Regional County Sanitation District's (SRCSD's) regional wastewater treatment facility. Conveyance would be provided by SRCSD for regional facilities (interceptor pipes) and Sacramento Area Sewer District (SASD) for local facilities (trunk sewers and service mains). There are existing collector and trunk sewer lines within the project site and the Bradshaw Interceptor, just north of Mather Airport which could be utilized to provide service to portions of Alternative A.

2.3.4.3 Electricity, Gas, and Telecommunications

Electrical service would be provided by Sacramento Municipal Utility District (SMUD). All new electrical lines under 69 kilovolts (kV) would be routed underground within the rights-of-way of proposed streets. The project proponent(s) would coordinate with SMUD to develop detailed design plans for electrical service to the project site.

Natural gas service would be provided by West Coast Gas and would be routed underground within the rights-of-way of project site streets. The project proponent(s) would coordinate with West Coast Gas to develop detailed design plans for natural-gas service to the project site.

AT&T has existing underground and overhead telephone lines in the vicinity of the project site. AT&T would extend lines and construct facilities to serve the project site concurrently with development phases.

2.3.4.4 Fire Protection and Emergency Medical Services

Fire protection services would be provided by the Sacramento Metropolitan Fire District. The nearest stations which would serve the project site are:

- Station 62 – 3646 Bradshaw Road in Sacramento, west of the project site
- Station 66 - 3180 Kilgore Road in Rancho Cordova, north of the project site
- Station 68 - 4381 Anatolia Drive in Rancho Cordova, east of the project site

2.3.4.5 Law Enforcement

Law enforcement services would be provided by the Sacramento County Sheriff's Department which provides service to the unincorporated areas of Sacramento County. The nearest substation to the project site is the East Division office, located at 10361 Rockingham Drive on the northern edge of the project site.

2.4 Alternative B – 2006 Conceptual Land Use Plan Alternative

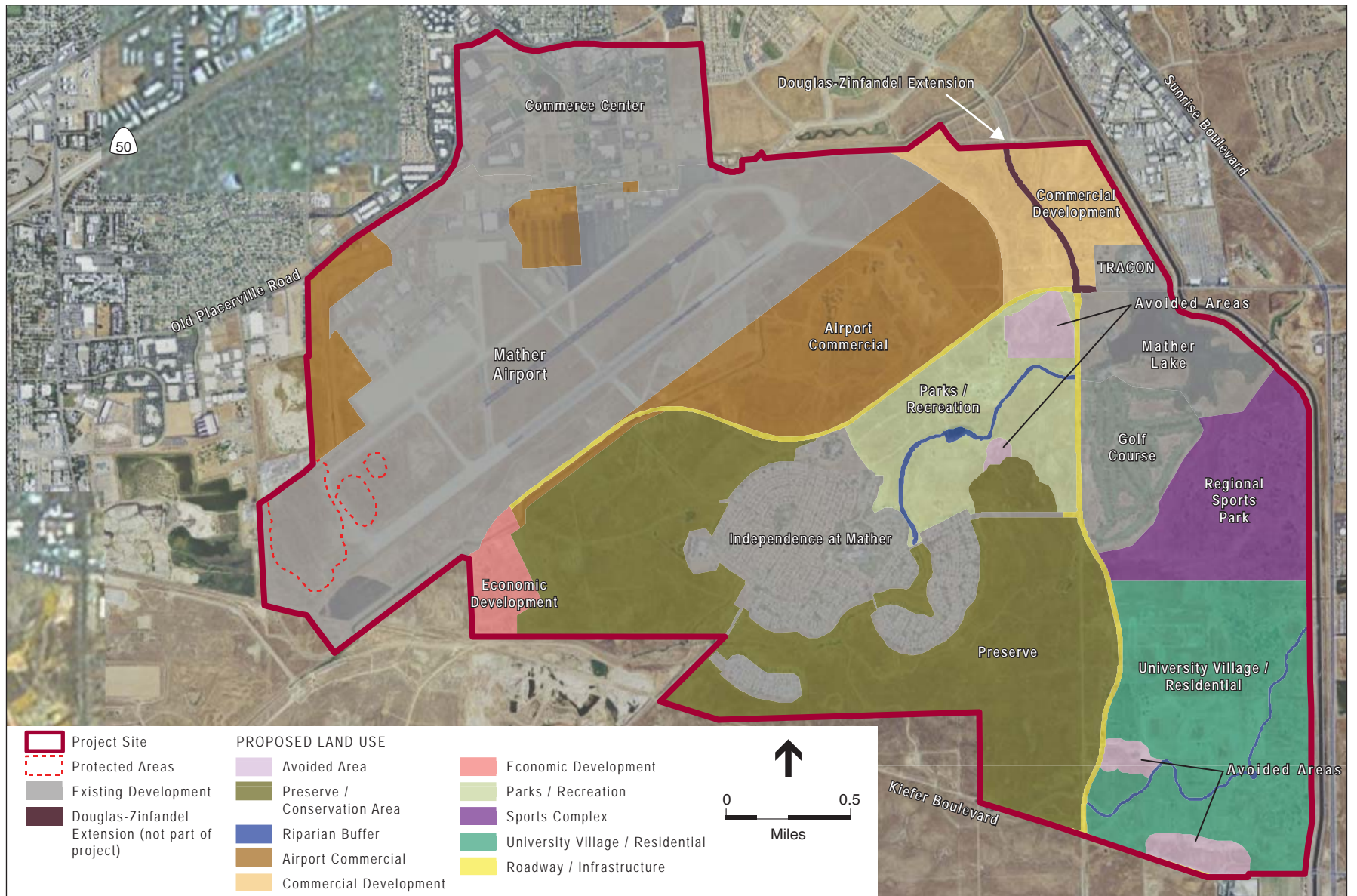
As discussed in **Chapter 1.0**, the Sacramento County Board of Supervisors conceptually endorsed a land use plan for the project site in 2006. Alternative B is based on the land uses and proposed boundaries of the Preserve and "Avoided Areas" based on the conceptually endorsed plan. Alternative B includes a 1,064-acre Preserve and 27 acres of Riparian Buffer area which is less than the 1,272-acre Preserve specified in the Biological Opinion for the proposed land transfer from the U.S. Air Force to the County; however, this alternative is still considered viable as the land transfer process has not been completed and the BO terms could be modified. As with Alternative A, this alternative includes the development of a large-scale mixed-use development on the project site. Alternative B would also require permits from the USACE pursuant to Section 404 of the Clean Water Act for the proposed fill of 39.64 acres of waters of the U.S. and additional entitlements listed in **Section 1.6.2**.

2.4.1 Proposed Land Uses

Proposed land uses under Alternative B are summarized in **Table 2-3** and shown in **Figure 2-2**. Proposed development within the Airport Commercial, Commercial Development, Economic Development, Regional Sports Park and Roadways/Infrastructure areas is identical to that discussed for Alternative A in **Section 2.3.1**. Alternative B differs from Alternative A in the shape and size of the Preserve as well as the establishment of "Avoided Areas" within the Parks and Recreation and University Village land use areas. Avoided areas would not be disturbed during construction but no active management is currently proposed. Moreover, the project proponent has proposed no long-term land use protections, such as conservation easements, for these areas. The Parks and Recreation area would be larger but would otherwise include uses identical to those discussed for Alternative A. The University Village/Residential area is reduced in size in comparison to Alternative A, but proposes similar building/facility development. Due to the similarity in sizing and types of land uses, the proposed facility development shown in **Table 2-2** would also generally apply for Alternative B.

2.4.2 Grading and Drainage

It is anticipated that grading and drainage plans would be developed for each proposed development type and submitted to the Sacramento County Municipal Services Agency for review prior to construction. Drainage features would be designed and maintained in accordance with the Stormwater Quality Design Manual for Sacramento and South Placer Regions (Sacramento County, 2007).



SOURCE: NAIP, 2006; Sacramento County, 2012; and ESA, 2012

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Figure 2-2
Alternative B – 2006 Conceptual Land Use Plan Alternative

**TABLE 2-3
ALTERNATIVE B - LAND USES WITHIN THE PROJECT SITE**

Area	Acreage
Proposed Development	
Airport Commercial	600
Commercial Development	203
Economic Development (Aggregate Extraction)	60
University Village/Residential	527
Parks and Recreation	284
Regional Sports Park	271
Roadways/Infrastructure	65
Proposed Development Total	2,011
Open Space	
Preserve	1,064
Riparian Buffer	27
Avoidance Areas	93
Proposed Open Space Total	1,184
Existing Development / Other	
Commerce Center	343
Douglas-Zinfandel Extension	11
Golf Course	154
Independence at Mather	400
Mather Airport	1,451
Mather Lake	163
Tracon	32
Existing / Other Total	2,554
Project Site Total	5,749

SOURCE: Sacramento County, 2012

2.4.3 Circulation

The Douglas-Zinfandel extension is not part of Alternative B. The proposed traffic modifications are identical to Alternatives A and C, including changes to Eagles Nest Road and Douglas Road.

2.4.4 Public Services and Utilities

Infrastructure including water, wastewater, electricity, natural gas, and telecommunications, is proposed within roadway rights-of-way. The service providers would be identical to those discussed for Alternative A.

2.5 Alternative C – Multiple Preserves Alternative

As with Alternatives A and B, this alternative includes the development of a large-scale mixed-use development on the project site. Alternative C would also require permits from the USACE pursuant to Section 404 of the Clean Water Act for the proposed fill of 33.65 acres of waters of the U.S. and additional entitlements listed in **Section 1.6.2**. This alternative would include additional, small Preserve areas to the east of Eagles Nest Road.

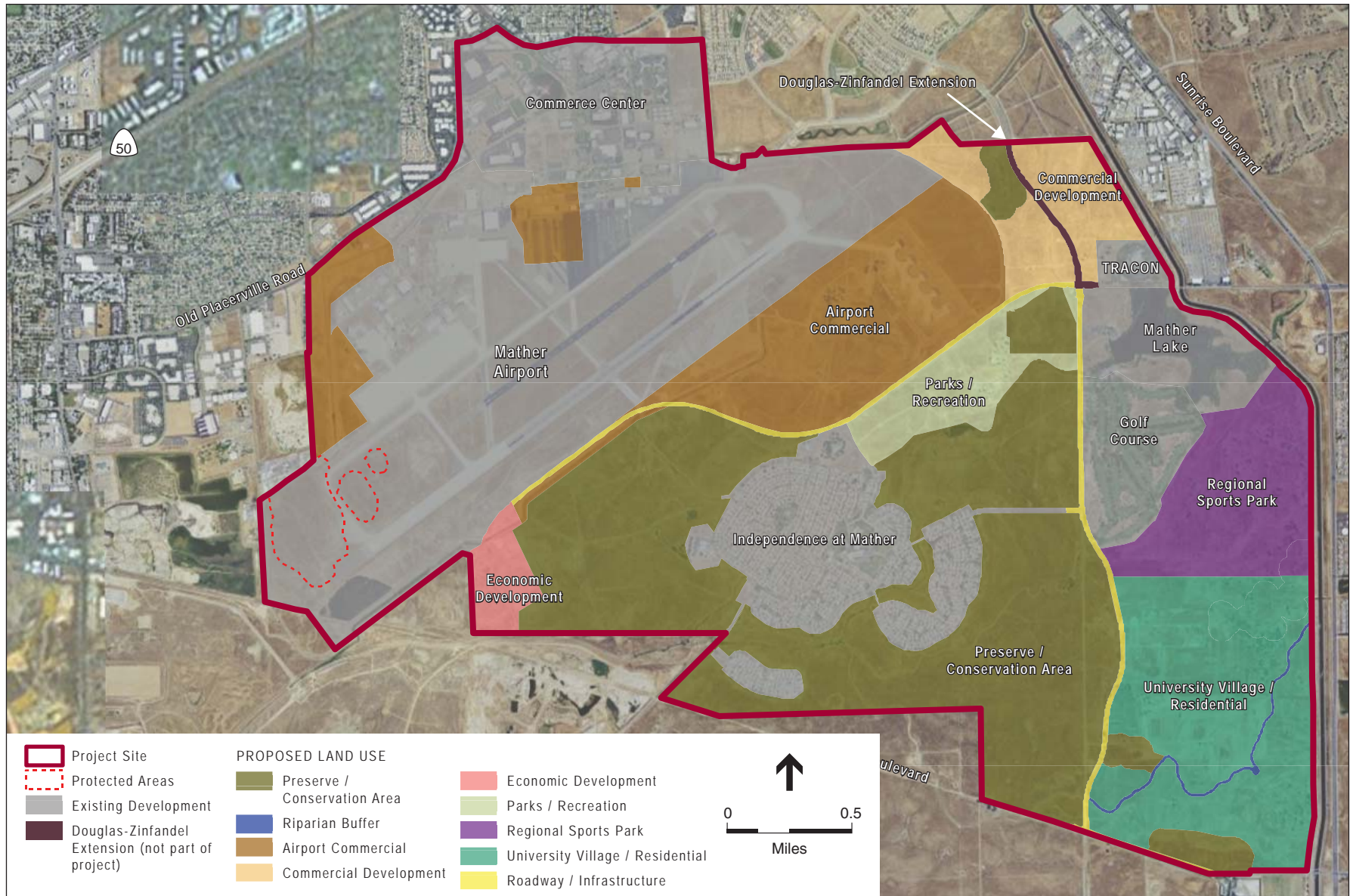
2.5.1 Proposed Land Uses

Proposed land uses under Alternative C are summarized in **Table 2-4** and shown in **Figure 2-3**. Proposed development within the Airport Commercial, Economic Development, Parks and Recreation and Regional Sports Park is identical to that discussed for Alternative A in **Section 2.3.1**. While the Preserve is the same shape and size as Alternative A, there would be additional small Preserves within the Commercial Development and University Village land use areas. Due to the similarity in sizing and types of land uses, the proposed facility development shown in **Table 2-2** would also apply for Alternative C.

**TABLE 2-4
ALTERNATIVE C - LAND USES WITHIN THE PROJECT SITE**

Area	Acreage
Proposed Development	
Airport Commercial	600
Commercial Development	179
Economic Development (Aggregate Extraction)	60
University Village/Residential	527
Parks and Recreation	133
Regional Sports Park	271
Roadways/Infrastructure	66
Proposed Development Total	1,836
Open Space	
Preserves	1,346
Riparian Buffer	13
Proposed Open Space Total	1,359
Existing Development / Other	
Commerce Center	343
Douglas-Zinfandel Extension	11
Golf Course	154
Independence at Mather	400
Mather Airport	1,451
Mather Lake	163
Tracon	32
Existing / Other Total	2,554
Project Site Total	5,749

SOURCE: Sacramento County, 2012



SOURCE: NAIP, 2006; Sacramento County, 2012; and ESA, 2012

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Figure 2-3
Alternative C – Multiple Preserves Alternative

2.5.2 Grading and Drainage

As with Alternatives A and B, it is anticipated that grading and drainage plans would be developed for each proposed development type and submitted to the Sacramento County Municipal Services Agency for review prior to construction. Drainage features would be designed and maintained in accordance with the Stormwater Quality Design Manual for Sacramento and South Placer Regions (Sacramento County, 2007).

2.5.3 Circulation

The Douglas-Zinfandel extension is not part of Alternative C. On-site traffic modifications are identical to Alternatives A and B, including changes to Eagles Nest Road and Douglas Road.

2.5.4 Public Services and Utilities

Infrastructure including water, wastewater, electricity, natural gas, and telecommunications, is proposed within roadway rights-of-way. The service providers would be identical to those discussed for Alternatives A and B.

2.6 Alternative D – No Permit Alternative

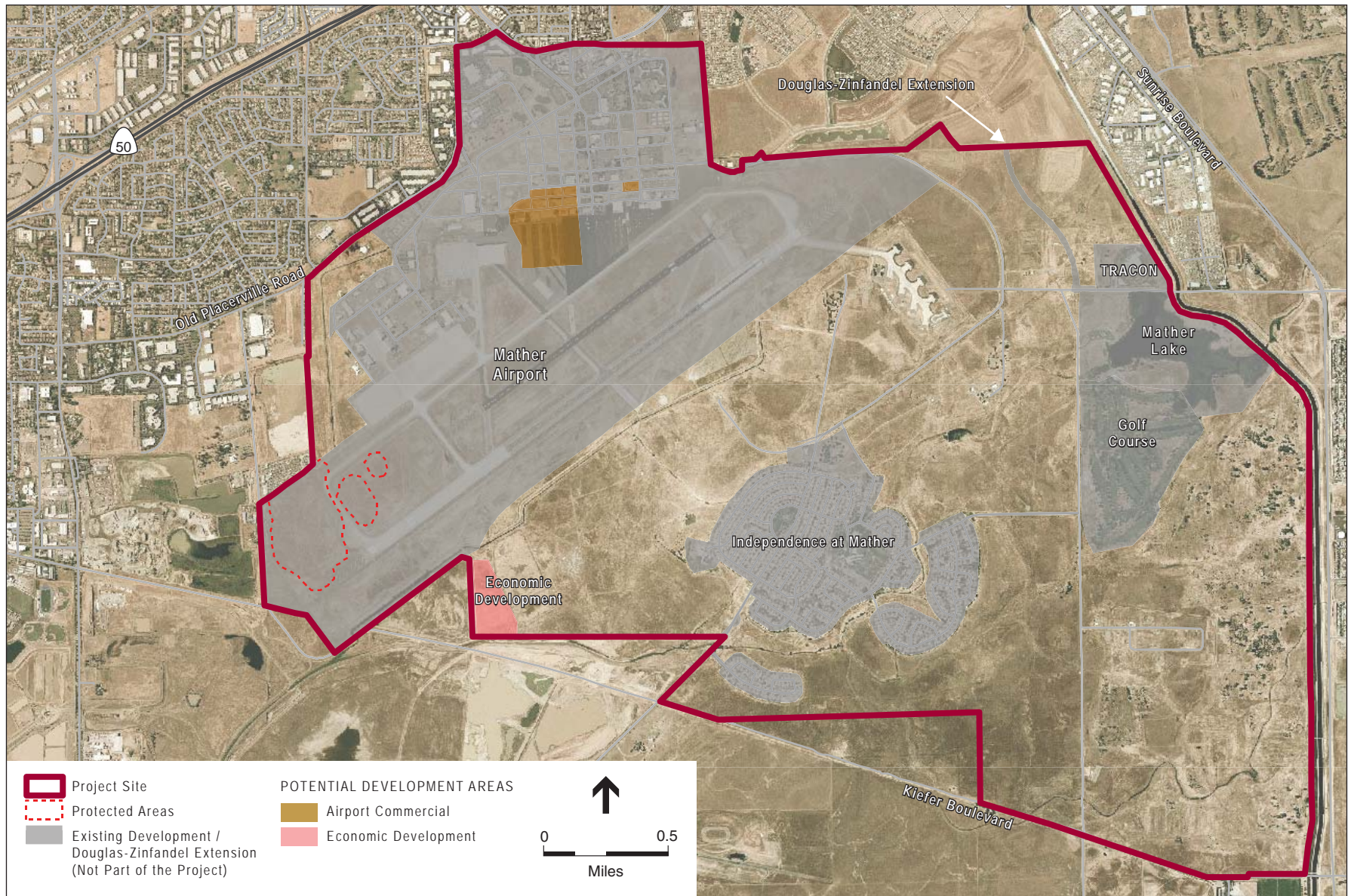
This alternative avoids the placement of dredged or fill material into waters of the U.S., including wetlands, thus eliminating the need for USACE authorization.

As shown in **Figure 2-4**, a reduced amount of future development could occur without a permit from USACE. This includes infill development at Mather Airport and aggregate extraction in the southwestern corner of the project site. Therefore, this alternative assumes these actions could occur at some future time.

As described in Section 1.3, the Supplemental Record of Decision (SROD) states that:

“unless Sacramento County and the appropriate federal regulatory agencies, including but not limited to EPA Region IX, U.S. Fish and Wildlife Service, and the U.S. Army Corps of Engineers, enter into agreements to protect the wetlands and endangered species prior to the conveyance by deed of SROD Parcels A and G... the [County] will manage the area consistent with a management plan approved by appropriate federal and state regulatory agencies, including but not limited to EPA Region IX, U.S. Fish and Wildlife Service, California Fish and Game, and the U.S. Army Corps of Engineers, to protect vernal pools, wetlands, and endangered species” (U.S. Air Force, 1994).

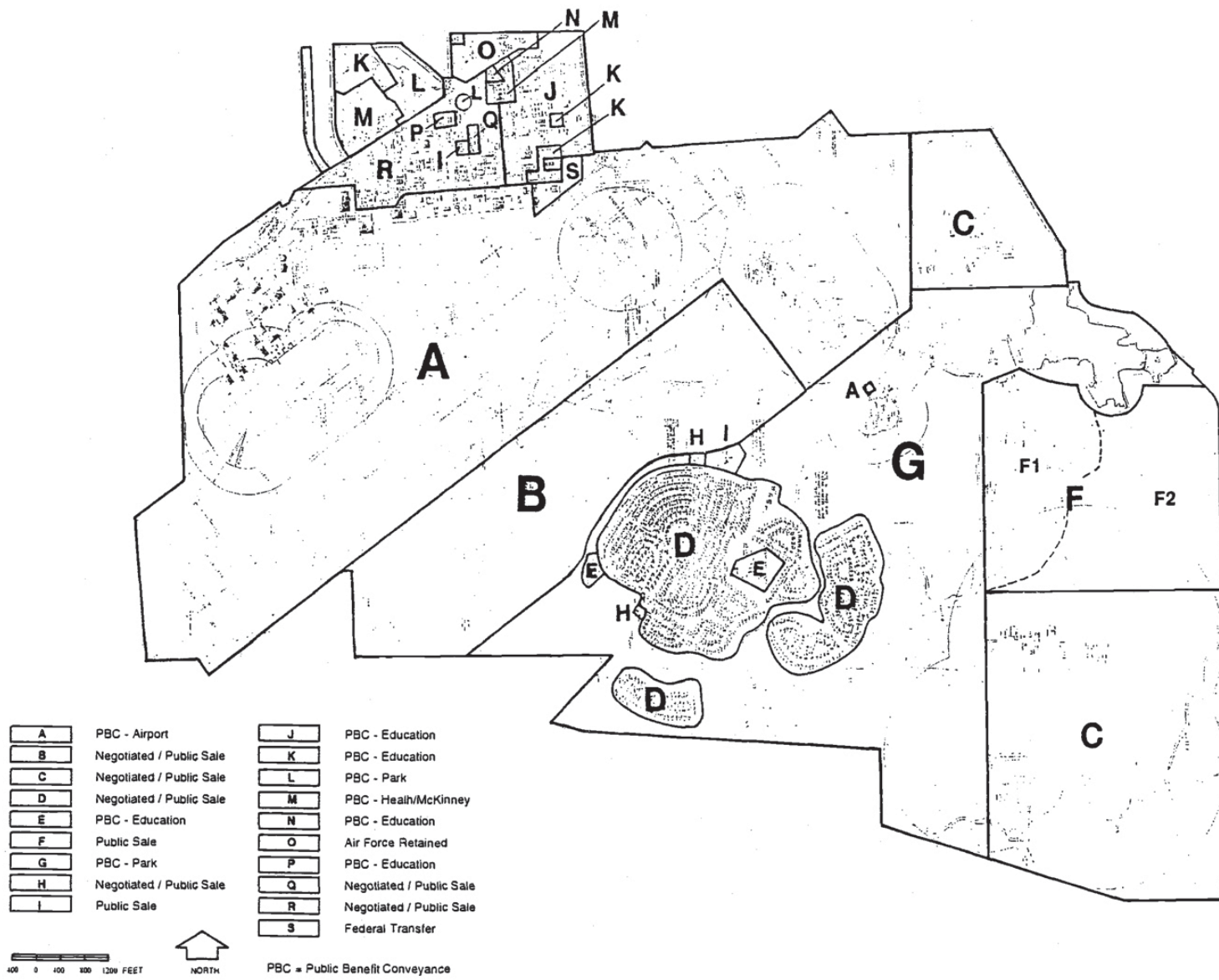
Parcels A and G are shown on **Figure 2-5**, and include Mather Airport and areas south of Mather Airport. Thus under Alternative D, one of the two measures described within the SROD must take place at the time of property conveyance. However, because this alternative does not include substantial economic development and related revenue to fund management of a preserve, the level of active management of preserve areas, including the restoration or enhancement of existing wetland resources, is unknown.



SOURCE: NAIP, 2006; Sacramento County, 2012; and ESA, 2012

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Figure 2-4
Alternative D – No Permit Alternative



SOURCE: U.S. Air Force, 1993; and ESA, 2010

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Figure 2-5
 Air Force Record of Decision Parcel Designations

2.7 Alternatives Considered but Eliminated from Further Evaluation

Because the overall project purpose is specific to the reuse of land transferred from the Air Force to the County (as discussed in **Section 1.4**), off-site alternatives were eliminated from consideration as they would fail to meet the overall project purpose.

Several on-site alternatives were explored given the constraints of existing development and land transfer mechanisms. These alternatives were considered impractical and are not evaluated further in this EIS. Alternatives considered but eliminated from further consideration include:

- East / West Preserve Alternative
- Southern Preserve Alternative
- Aggregate Extraction Alternative

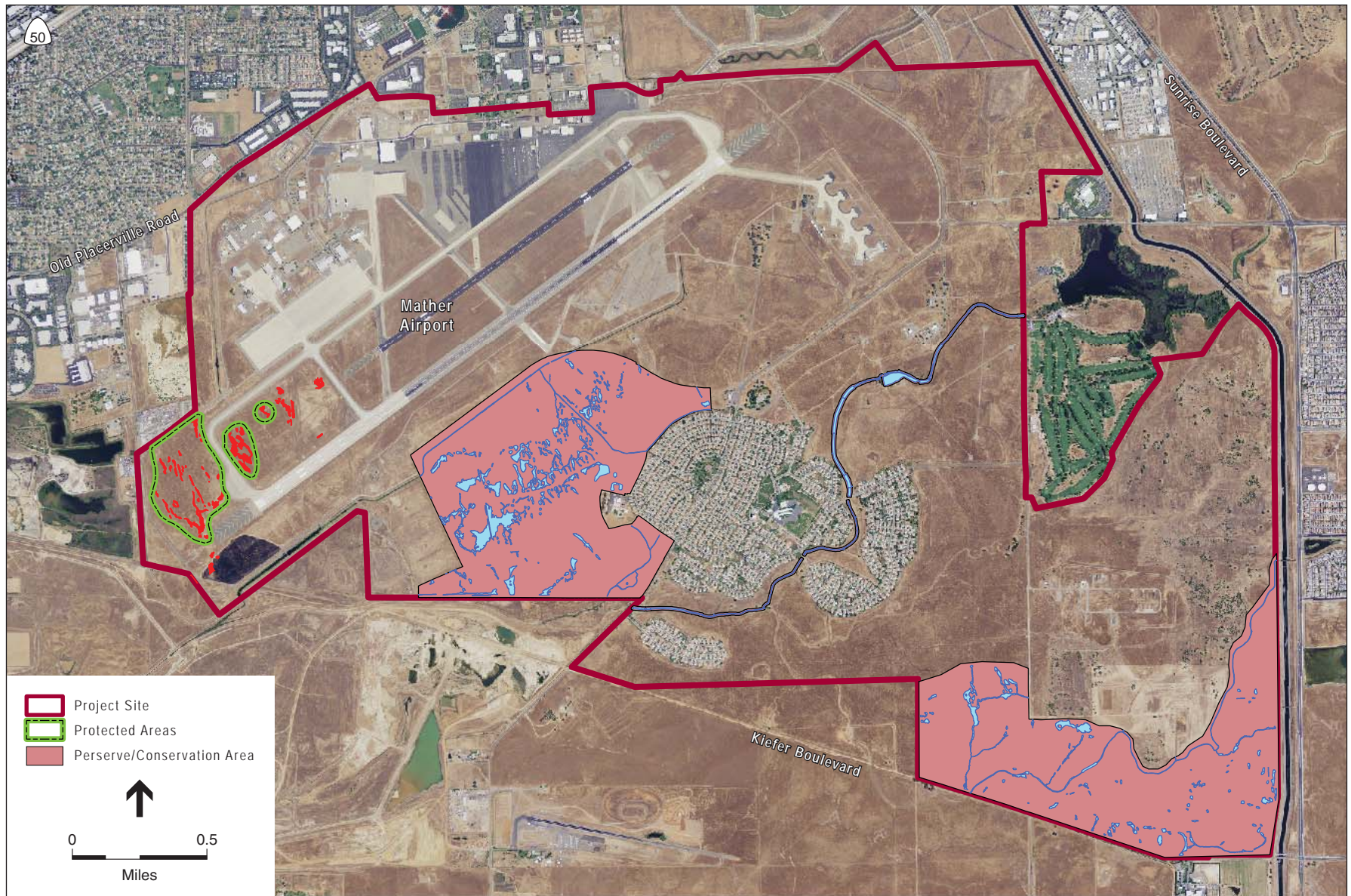
2.7.1 East / West Preserve Alternative

The East / West Preserve Alternative would include separate western and eastern Preserve areas (**Figure 2-6**). The Preserves would be separated by Eagles Nest Road and additional residential development. It is assumed this alternative would include similar roadways and infrastructure and the following land uses, similar in size and location to Alternative A, B and C: Airport Commercial, Commercial Development, Parks/Recreation and Regional Sports Park. A University Village/Residential component would be located east of Eagles Nest Road and south of the Regional Sports Park, though it would be reduced in size due to the eastern Preserve. This alternative could result in the fill of up to 57 acres of waters of the U.S. of which 44 acres are vernal pools and seasonal wetlands which provide suitable habitat for vernal pool species.

Based upon preliminary analysis, this alternative would have greater impacts to wetland/vernal pool resources when compared to Alternatives A, B and C. In addition, the Preserve configuration of two separate, smaller Preserves is not as ecologically sustainable as a larger, more cohesive Preserve (such as those considered under Alternatives A, B and C) due to reduced hydrologic connectivity. Based on these factors, this alternative was dismissed from further evaluation.

2.7.2 Southern Preserve Alternative

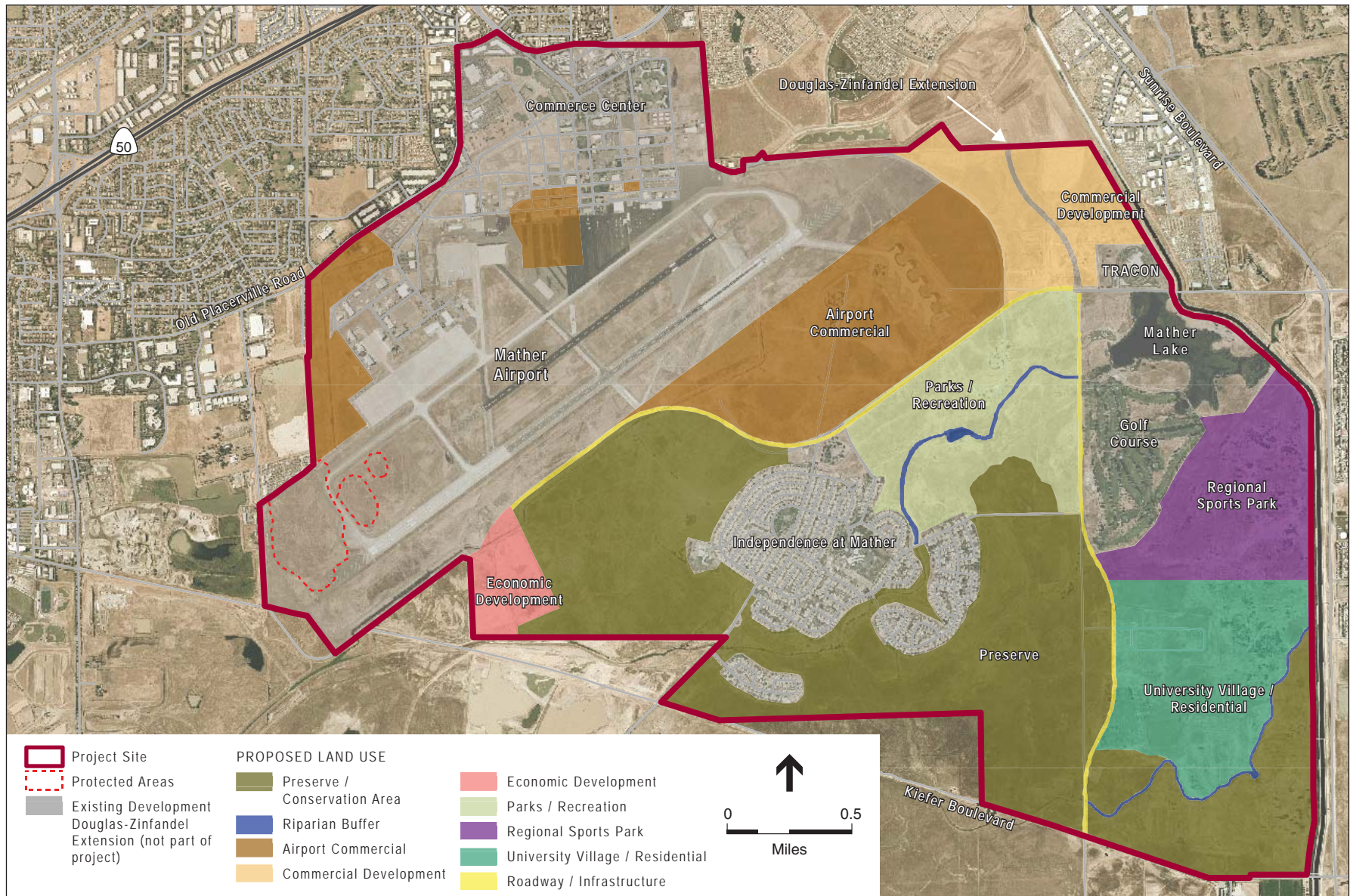
This alternative would include a Preserve extending east of Eagles Nest Road and south of Morrison Creek (**Figure 2-7**). The Southern Preserve Alternative would substantially reduce the area proposed for the University Village/Residential land use, decreasing the number of potential housing units. While the development footprint would be increased west of Eagles Nest Road, the net developable area would be less due to the inefficiencies and constraints associated with developing the areas north and south of Morrison Creek. In addition, the increased development footprint west of Eagles Nest Road would decrease the efficiencies of economies of scale with respect to infrastructure versus other alternatives, with more contiguous development footprint east of



SOURCE: NAIP, 2006; Sacramento County, 2010; and ESA, 2010

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Figure 2-6
East/West Preserve Alternative



SOURCE: NAIP, 2006; Sacramento County, 2012; and ESA, 2012

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Figure 2-7
Southern Preserve Alternative

Eagles Nest Road. Based on available information, this alternative would also eliminate the possibility of any commercial development along Kiefer Boulevard, another crucial component driving economic feasibility. The Southern Preserve Alternative would allow for only one point of entry along Eagles Nest Road into the University Village/Residential land use area, which would make it infeasible from a logistical standpoint (both for traffic circulation and emergency access). The Preserve proposed under this alternative would be bisected by Eagles Nest Road, thereby resulting in greater potential edge effects when compared to other Preserve configurations. Additionally, the infrastructure costs for the future extension of Zinfandel Drive through the southern area of the preserve (if feasible to avoid the preserve) as well as the future improvements to Kiefer Boulevard will increase significantly due to additional avoidance and mitigation measures associated with the southern preserve. Based on these considerations, this alternative was dismissed from further evaluation as it was determined to be impractical taking into consideration cost and logistics.

2.7.3 Aggregate Extraction Alternative

Expanded aggregate development was contemplated within the development alternatives presented in the Final EIS prepared for the Disposal and Reuse of Mather Air Force Base (U.S. Air Force, 1992). However, expanded aggregate operations are considered infeasible, as the eastern portion of the project site lacks substantial aggregate resources and infrastructure to connect to existing off-site aggregate conveyor belts. In addition, increased aggregate operations in the central portion of the project site would present substantial impacts to sensitive biological resources. The Air Force therefore concluded this alternative infeasible, and the same factors are still relevant. Based on these considerations, this alternative was dismissed from further evaluation.

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CHAPTER 3.0

Affected Environment

3.1 Introduction

Per 40 CFR §1502.15, an EIS shall include a description of the environment to be affected by the alternatives under consideration. Issues that are discussed include:

- Geology, Soils and Mineral Resources
- Hydrology, Flooding and Water Quality
- Air Quality and Global Climate Change
- Biological Resources
- Aquatic Resources
- Cultural and Historic Resources
- Socioeconomics and Environmental Justice
- Transportation and Traffic
- Land Use and Agriculture
- Public Services, Utilities and Recreation
- Hazards and Hazardous Materials
- Noise
- Aesthetics

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3.2 Geology, Soils and Mineral Resources

This section addresses the geology, soils and mineral resources setting of the project site.

3.2.1 Existing Setting

3.2.1.1 Geology

Regional Physiographic Setting

The project site is located in the Sacramento Valley, approximately 2 miles south of the American River, and lies centrally within the Great Valley geomorphic province of California. The Sacramento Valley forms the northern third of the Great Valley, which includes approximately 33,000 square miles and fills a northwest-trending structural depression bounded on the west by the Great Valley Fault Zone and the Coast Ranges, and on the east by the Sierra Nevada and the Foothills Fault Zone. The Great Valley is composed of thousands of feet of sedimentary deposits that have undergone periods of subsidence and uplift over millions of years. During the Jurassic and Cretaceous periods of the Mesozoic era (206 to 144 million years ago), the Great Valley existed in the form of an ancient ocean floor. By the end of the Mesozoic era, the northern portion of the Great Valley began to fill with sediment as tectonic forces caused uplift of the basin. By the time of the Miocene epoch, approximately 24 million years ago, sediments deposited in the Sacramento Valley were mostly of terrestrial origin.

Most of the surface of the Great Valley is covered with Holocene (11,000 years to present day) and Pleistocene (i.e., 11,000 – 1,800,000 years before present) alluvium deposits. This alluvium is composed of sediments from the Sierra Nevada to the east and the Coast Ranges to the west that were carried by water and deposited on the valley floor. Siltstone, claystone, and sandstone are the primary types of sedimentary bedrock units found in the Great Valley. Older Tertiary deposits underlie the Quaternary alluvium.

Local Geology

Six geologic units are located within the project site (Dupras, 1999), including (from oldest to youngest): the Laguna Formation (Tl); South Fork Gravels (Qsf); Lower Unit, Riverbank Formation; Middle Unit, Riverbank Formation (Qrm); Upper Unit, Modesto Formation (Qmu); and Undifferentiated Surficial Alluvial Deposits (Qu). The Laguna Formation covers large portions of the project site east of Mather Airport. The Middle Unit, Riverbank Formation covers a majority of Mather Airport while Undifferentiated Surficial Alluvial Deposits, South Fork Gravels and Upper Unit, Modesto Formation bisect the Laguna Formation deposits in the eastern portion of the project site (Dupras, 1999).

Within Sacramento County there are areas of naturally occurring asbestos within certain types of rock formations. The project site is located within an area identified as containing metamorphic, igneous, and sedimentary rocks. These formations are considered to be some of the least likely to contain naturally occurring asbestos (Higgins and Clinkenbeard, 2006).

Topography

The topography at the project site is relatively flat. Elevations range from 75 feet above mean sea level in the western portion of the project site to 150 feet above mean sea level in the eastern portion.

Seismicity

No known active faults lie within or near the project site. Subsequently, no faults within a designated Alquist-Priolo Fault Zone are located within the project site. Characteristics of the nearest known active faults to the project site are included in **Table 3.2-1**. This fault system is part of a group of Western Sierra faults collectively called the Foothills Fault Zone. The maximum moment magnitude that this fault system can produce is 6.5 (Tianqing et. al., 2003). The inactive Midland Fault zone is located approximately 30 miles east of the project site.

**TABLE 3.2-1
ACTIVE FAULTS NEAR THE PROJECT SITE**

Fault	Approximate Distance (miles) from the Project Site	Fault Type ¹	Maximum Moment Magnitude ²
Dunnigan Hills	35	B	6.75
Great Valley Thrust Zone, Segment 4	45	B	6.6
Great Valley Thrust Zone, Segment 5	50	B	6.5
Green Valley	50	B	6.2
Concord	55	B	6.2
Greenville Fault Zone (includes Clayton and Marsh Creek Sections)	55-65	B	6.6

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 there is no particular value beyond which all earthquakes have about the same magnitude, which makes it a particularly valuable tool for assessing large earthquakes.

n/a = not available or not known

SOURCES: Jennings and Saucedo, 1994; Petersen et al., 1996.

Both historic information and probabilistic seismic hazard assessment show that even in an unlikely event, ground shaking and damage at the project site would be expected to be slight to moderate. Probabilistic seismic hazard assessments performed by the California Geological Survey (CGS) indicate that the project site has a 10 percent chance of exceeding ground motion of 0.102 g¹ for hard rock and 0.111 g for soft rock, over the next fifty years (Petersen et al., 1996). These ground motions correspond to Modified Mercalli (MM) intensities of VI, which would be felt by nearly all, but cause only slight damage. In the past 200 years, the project area has never experienced recorded MM intensities of VII or higher from local or regional earthquakes (Petersen et al., 1996).

¹ Acceleration due to gravity or "g", is approximately 9.8 meters per second squared.

Liquefaction

Liquefaction in soils and sediments occurs during some earthquake events, when material is transformed from a solid state into a liquid state because of increases in pressure in the pores (the spaces between soil particles). In Sacramento County, areas with the greatest liquefaction potential include the Delta and the downtown area (Sacramento County, 2011). Over the past 10 years, depth to groundwater at the project site ranged from approximately 115 feet to 150 feet below mean sea level (California Department of Water Resources, 2010). The project site has a low likelihood of liquefaction hazards based on the soil and groundwater conditions of the area.

Subsidence

Sacramento County is most affected by subsidence² caused by pumping of groundwater for residential, commercial and agricultural uses. The portion of the County that is subject to subsidence from groundwater withdrawal is located in the Delta; however, a majority of the County is underlain by a groundwater basin that could contribute to the risk of subsidence (Sacramento County, 2011). These risks are typically minimized through standardized engineering practices and best management practices when new loads are introduced onto the soil base.

Landslides

The Sacramento County General Plan identifies landslide hazards within the County as being limited to lands along the boundary shared with Placer County (Sacramento County, 2011). The project site is relatively flat and therefore has a very low potential for landslides.

3.2.1.2 Soils

The characterization of soils on the project site is based on Countywide mapping by the U.S. Department of Agriculture, Natural Resources Conservation Service (1993) and National Cooperative Soil Survey (2009). Soils present within the project site are summarized in **Table 3.2-2** and shown on **Figure 3.6-2**. As shown in **Table 3.2-3**, the site contains soils which vary from low to high shrink-swell potential. A majority of the project site contains soil types with a moderate to high potential for corroding or weakening uncoated steel and concrete.

² Subsidence is defined as settling or sinking of parts of the earth's surface.

**TABLE 3.2-2
CHARACTERISTICS OF SOILS FOUND ON THE PROJECT SITE**

Soil Series (soil map unit)	Shrink-Swell Potential	Permeability	Drainage	Water Erosion Hazard	Risk of Corrosion (steel/concrete)	Limitations
Creviscreek sandy loam (132)	Moderate	Moderate	Moderately well drained	Slight	Moderate/moderate	Suitable for rangeland and irrigated hay and pasture
Hedge loam (157)	Low	Moderately slow	Moderately well drained	Slight	High/low	Residential dwellings: severe, flooding Commercial buildings: severe, flooding Roads: severe, flooding
Kimball silt loam (164)	High	Very slow	Well drained	Slight	Moderate/moderate	Urban development: very slow permeability, shrink-swell potential and low strength
Kimball-Urban land complex (166)	High	Very slow	Well drained	Slight	Moderate/moderate	Urban development: very slow permeability, shrink-swell potential, and low strength
Natomas loam (181)	Low	Moderately slow	Well drained	Slight	Moderate/moderate	Urban development: low strength
Pits (190)	n/a	n/a	n/a	n/a	n/a	n/a
Red Bluff loam (191)	Moderate	Moderately slow	Well drained	Slight	High/high	Suitable for rangeland and dryland crops
Red Bluff loam (192)	Moderate	Moderately slow	Well drained	Slight to moderate	High/high	Suitable for rangeland and dryland crops
Red Bluff-Redding complex (193)	Moderate	Moderately slow	Well drained	Slight to moderate	High/high	Suitable for rangeland
Red Bluff-Urban land complex (194)	Moderate	Moderately slow	Well drained	Slight to moderate	High/high	Urban development: hazard of erosion and low strength
Red Bluff-Xerarents complex (195)	Moderate	Moderately slow	Well drained	Slight	High/high	Suitable for irrigated pasture and some irrigated crops
Redding gravelly loam (198)	High	Very slow to moderate	Moderately well drained	Slight to moderate	High/moderate	Residential dwellings: moderate, cemented pan Commercial buildings: moderate, slope, cemented pan Roads: moderate, cemented pan, low strength
San Joaquin silt loam, leveled (213)	High	Very slow	Moderately well drained	Slight to no hazard	Moderate/moderate	Suitable for irrigated crops, rice crops, or irrigated hay and pasture
San Joaquin silt loam (214)	High	Very slow	Moderately well drained	Slight	Moderate/moderate	Residential dwellings: severe, shrink-swell potential Commercial buildings: severe, shrink-swell potential Roads: severe, shrink-swell potential, low strength
San Joaquin-Urban land complex (219)	High	Very slow	Well drained	Slight	Moderate/moderate	Urban development: shrink-swell potential, low strength, depth to hardpan, and very slow permeability
Urban Land (227)	n/a	n/a	n/a	n/a	n/a	n/a
Urban land-Natomas complex (228)	Low to moderate	Moderately slow	Well drained	Slight	Moderate/moderate	Urban development: low strength
Xerarents-Urban land-San Joaquin complex (240)	Low to high	Moderate to very slow	Moderately well drained	Slight	Moderate/moderate	Urban development: variety of soil depths
Water (247)	n/a	n/a	n/a	n/a	n/a	n/a

n/a = not available

SOURCE: Natural Resources Conservation Service. 1993.

3.2.1.3 Mineral Resources

The Department of Conservation, CGS has classified lands within Sacramento County into Mineral Resource Zones (MRZs). The CGS assessment of mineral resources in Sacramento County evaluated the presence, or likely occurrence, of Portland cement concrete-grade (PCC-grade) aggregate resources. The following MRZs are relevant to the project site:

- 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. Some MRZ-1 areas have been mined out for PCC-grade aggregate resources.
- MRZ-2a: Areas underlain by mineral deposits where geologic data indicate that significant measured or indicated resources are present (as determined by such evidence as drilling records, sample analysis, surface exposure, and mine information).
- MRZ-2b: Areas underlain by mineral deposits where geologic information indicates that significant inferred resources are present (as determined by their lateral extension from proven deposits or their similarity to proven deposits.)
- MRZ-3: Areas containing mineral deposits, the significance of which cannot be evaluated from available data.

The western portion of the project site is designated as MRZ-2, with some areas designated as MRZ-1. The eastern portion of the project site is designated as MRZ-3.

While most of the land within eastern Sacramento County contains mineral deposits (unless they have previously been extracted), only a small portion of eastern Sacramento County is underlain by known, high quality mineral resources that are available for extraction (Sacramento County, 2009). The State Geologist has designated Aggregate Resource Areas (ARAs) in Sacramento County where lands are designated MRZ-2a or MRZ-2b for PCC-grade aggregate and have compatible uses with future mining activities. The project site contains a designated ARA of approximately 570 acres. The ARA is located on the western portion of the project site including a portion within the existing Mather Airport. Three ARAs are located directly south of the project site and one ARA is located directly north of the project site (California Department of Conservation, Division of Mines and Geology, 1999).

3.2.2 Regulatory Setting

3.2.2.1 Federal

National Pollutant Discharge Elimination System

A discussion of the National Pollutant Discharge Elimination System permit program, which is relevant for controlling on-site erosion, is included in **Section 3.3.2.1**.

3.2.2.2 State

California Building Standards Code

The California Building Code (CBC) is codified in the California Code of Regulations Title 24, Part 2. The purpose of the CBC is to establish minimum standards to safeguard the public health,

safety and general welfare through structural strength, means of egress facilities, and general stability by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of building and structures throughout California. This includes seismic and soil design parameters for new construction.

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3.3 Hydrology, Flooding and Water Quality

This section describes the surface water hydrology, groundwater hydrology, water quality and flooding information relevant to the project site.

3.3.1 Existing Setting

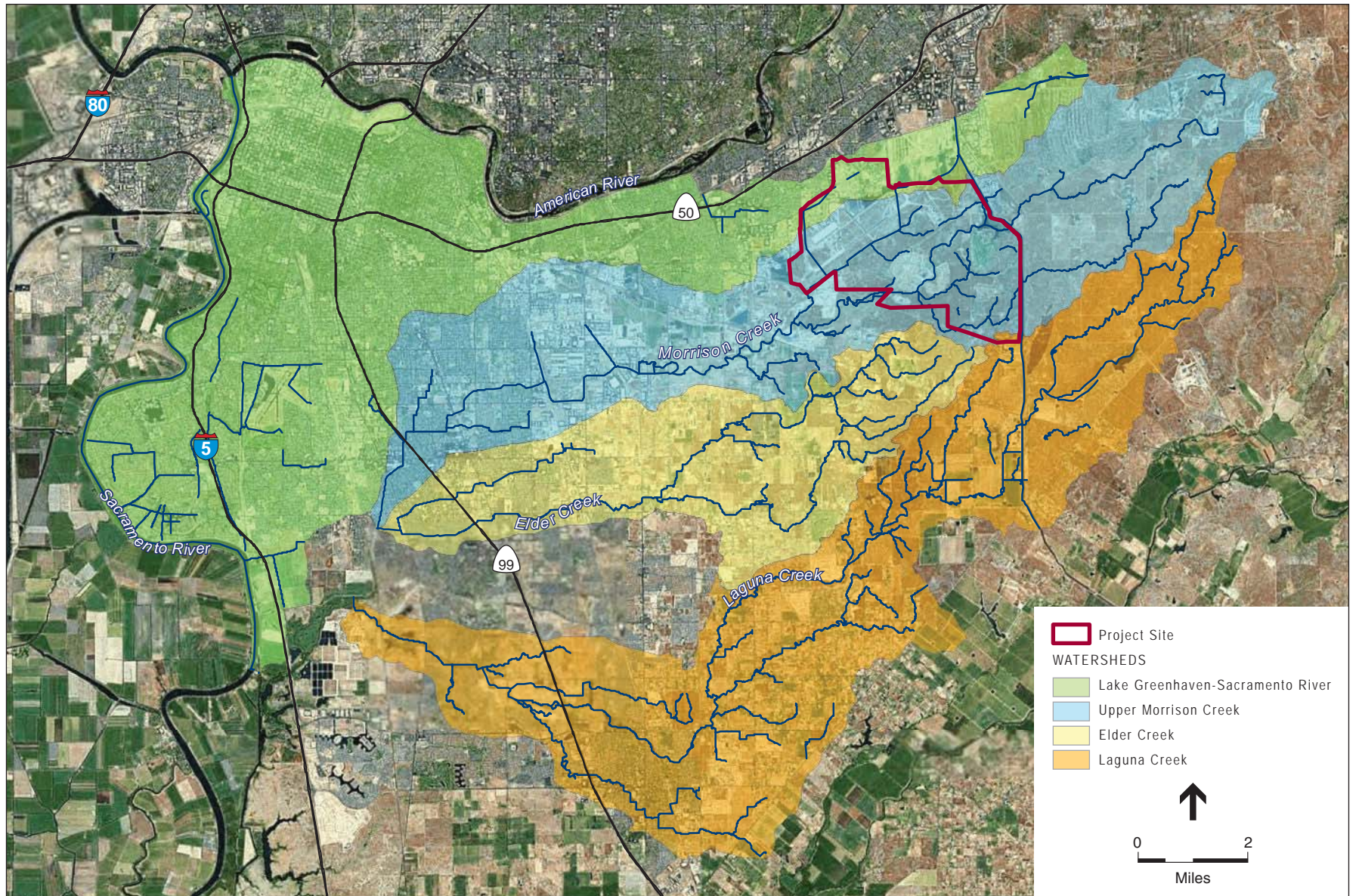
3.3.1.1 Surface Hydrology and Drainage

A watershed map is included as **Figure 3.3-1**. Morrison Creek is the primary drainage feature located on the project site. Originating in the lower foothills, the creek crosses Sunrise Boulevard and Douglas Road via culverts east of the project site. It crosses over the top of the Folsom South Canal via an engineered overchute (14 feet wide by 9 feet deep) located at grade with Morrison Creek's streambed, but above grade of the canal. At that point, Morrison Creek enters Mather Lake, a manmade impoundment located on the project site. Downstream of Mather Lake, the creek is once again impounded behind a small dam, located just upstream of the existing residential development on the project site. Various small tributaries feed into Morrison Creek from the project site. The creek leaves the project site just south of the existing residential development.

Downstream of the project site, Morrison Creek is channelized and flows southwest around existing surface mining operations to Watt Avenue. Flowing under Watt Avenue, the creek then passes through urbanized industrial and residential areas, eventually crossing underneath SR-99 and into the Sacramento Regional County Sanitation District's system of ponds, before discharging into the Sacramento River.

As discussed in **Section 3.5.1.3** and **Section 3.6.1**, the project site contains a number of ephemeral and seasonal water features, including vernal pools, seasonal wetlands, swales, ephemeral channels, and manmade ditches. The project site was likely highly influenced by past floods that deposited sediment on flood terraces; the project site includes older lower terraces to the west and high terraces to the east. Within the project site, the Redding, San Joaquin, and Hedge soils commonly contain vernal pools. The soils have formed claypans and hardpans, and some soils have both an overlying claypan and an underlying hardpan (Wetlands Research Associates, 2004). The hardpans and claypans are mostly impervious to the downward percolation of rainwater, and water may travel horizontally along the impervious soil layer to lower terraces. Where depressions occur on these soils, rainwater tends to pond, forming vernal pools. These features, along with seasonal wetlands and swales, may be hydrologically interconnected through surface and shallow subsurface flows during storm events, with the site generally draining from the northeast to the southwest.

On-site drainage is provided by an engineered stormwater control/drainage system within developed portions of the project site, including the air field and the existing residential development. Stormwater from these areas drains into local storm drains, culverts, and other drainage infrastructure, and is eventually discharged into Morrison Creek and its tributaries.



SOURCE: Bing Maps, 2009; USGS, 2010; and ESA, 2010

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Figure 3.3-1
Project Site Watersheds

Surface Water Impoundments

In 1956, Morrison Creek was dammed near its entry point to the project site. Mather Dam has a maximum height of about 11 feet. The resulting water body, Mather Lake can store up to about 200 acre-feet of water. During the winter rainy season, Mather Lake is fed primarily by runoff carried downstream by Morrison Creek, but also by overland flows from areas adjacent to the lake, and by rainfall occurring directly within the lake area. A second, smaller impoundment is located approximately 0.8 miles (along the creek) downstream from Mather Lake. This unnamed impoundment is substantially smaller than Mather Lake, and has a total surface area of approximately 1.9 acres at capacity.

Evaporation from Mather Lake exceeds water input from rainfall and runoff on an annual basis. When the lake was under federal control, it received supplemental water supplies from Folsom South Canal, on the order of approximately 100,000 gallons annually, in order to keep the lake from drying out in the summer. Water for this purpose was provided via an agreement with the Rancho Seco Nuclear Power Plant until the plant was shut down in 1989. Through 1996, water was supplied on an annual basis via coordination with the Bureau of Reclamation, although this source of water proved unreliable, resulting in substantial temporary drawdowns of the lake during some years (ECORP, 2002). More recently these supplies have become unreliable or unavailable, and approximately 250 gallons per minute of remediated groundwater is supplied to the lake from remediation actions located on the project site, associated with the former Air Force Base. This supply of supplemental water is expected to continue for the next 10 to 15 years.

According to previous environmental documentation prepared for the project site, routine maintenance and inspection of Mather Dam had not occurred until the transition from federal to local control in 1996. While the project site was managed by the U.S. Air Force, Mather Dam was exempt from California's dam safety regulations due to its federal status. Since transition out of federal management, the dam has become subject to California regulations for dam safety.

3.3.1.2 Surface Water Quality

Morrison Creek is on the U.S Environmental Protection Agency's (USEPA) list of Clean Water Act Section 303(d) Impairments for Chlorpyrifos and Diazinon (USEPA, 2010). However, these impairments pertain to the lower reaches of Morrison Creek, and are not directly applicable to the project site.

Water quality on the project site, including Mather Lake, Morrison Creek, and the smaller impoundment, is influenced by a variety of on site and upstream activities. Stormwater runoff from impervious surfaces, as well as residential, airport, and recreational uses located on site is expected to contribute fuels, oils, greases, herbicides, pesticides, sediment, and other constituents related to urban uses. Stormwater flows flush nutrients, fertilizers, pathogens, sediment, and other pollutants from upstream areas into Mather Lake and downstream areas. Finally, as previously noted, Mather Lake receives remediated groundwater discharges. Although this water is considered safe because chemical concentrations are less than applicable action levels and discharge standards, it still contains very low levels of target pollutants, or other potential water quality concerns such

as increased dissolved solids. Additional information regarding groundwater contamination issues is provided in **Section 3.12, Hazards and Hazardous Materials**.

3.3.1.3 Flooding

100-Year Flood Zones and Events

The Federal Emergency Management Agency (FEMA) provides information on flood hazard and frequency for cities and counties on its Flood Insurance Rate Maps. FEMA identifies designated zones to indicate flood hazard potential. In general, flooding occurs along waterways, with infrequent localized flooding also occurring due to storm drain system limitations or surface water ponding. As shown in **Figure 3.3-2**, the project site is located within an area that has not been mapped by FEMA for the 100-year floodplain because access was previously restricted by the U.S. Air Force. Immediately southwest of the project site, however, Morrison Creek and adjacent areas, including surface mining operations, are included in the 100-year flood zone. While the project site has not been officially surveyed, it is reasonable to conclude that the 100-year floodplain exists within the project site, in particular along Morrison Creek, its tributaries, and other adjacent low-lying areas.

Dam Breach Flooding Potential

A USACE (1996) study investigated the effects of a breach of Mather Dam on downstream areas, including portions of the project site. Based on this analysis, a dam breach would result in a maximum outflow of approximately 2,000 cubic feet per second. This would cause about 15 houses downstream of the breach (along Woodring Way and McRoberts Way) to become inundated. Flooding of these structures would be up to about two feet in depth and likely be of short duration.

Climate Change and Flooding

Global climate change is anticipated to affect a variety of water resources through out California, including those on and near the project site. Locally, these changes may result in increases in the intensity of stormwater runoff and flooding events in and around the project site.

A recent analysis by the United States National Weather Service (USNWS), using data from 1931 through 2005, indicates a long-term trend of increasing annual precipitation in California, especially in northern California, where data show an increase of up to 1.5 inches per decade (USNWS, 2008).

A second investigation completed by the California Department of Water Resources (DWR) indicates a statistically significant trend towards increased total precipitation in northern and central California since the late 1960s (DWR, 2006). An investigation of rainfall during November through March of 1930 through 1997 indicates significant increases in California rainfall (distinct from snowfall) (Mote, 2005). A single investigation by Bardini et al. (2001) indicates potentially decreasing annual precipitation in California. However, this result is likely derived from a specific subset of data that the Bardini study relied upon, with extremes at the beginning or end of the time series data substantially affecting the identified trend (DWR, 2006).



SOURCE: NAIP, 2006; FEMA, 2007; and ESA, 2010

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Figure 3.3-2
FEMA Flood Zones

There is also evidence that the amount of precipitation that occurs on an annual basis is becoming more variable. That is, periods of both high and low rainfall are becoming more common. Specifically, a study performed by DWR (2006) indicates that present-day variability in annual precipitation is about 75 percent greater than that of the early 20th century.

In terms of flooding, DWR reviewed historic flows in the Feather, American, and Tuolumne Rivers (DWR, 2006). The investigation divided in half a century-long dataset to compare pre-1955 to post-1955 data. Results indicated that the 100-year 3-day peak flows have more than doubled in the American (111 percent increase) and Tuolumne (102 percent increase) Rivers, and increased by 51 percent in the Feather River. Comparing the pre- to post-1955 periods, only one major flood event occurred prior to 1955 in the three rivers, while four occurred during the post-1955 period. Thus, annual peak 3-day mean discharges in these northern California watersheds are becoming larger and more variable. Independent climate modeling efforts predict that these trends toward more variable river and stream flows, including more frequent flooding events, will continue as a result of climate change (Dettinger et al., 2004).

3.3.1.4 Groundwater Levels and Quality

The project site is located within the South American Subbasin of the Sacramento Valley Groundwater Basin, which is roughly bounded to the north by the American River, to the west by the Sacramento River, to the south by the Cosumnes River and Mokelumne River, and to the east by bedrock associated with the western slope of the Sierra Nevada Mountains. The subbasin is situated along the southern end of the Sacramento Valley Groundwater Basin, and some degree of groundwater flow across the subbasin boundaries has been documented (DWR, 2003).

Groundwater level trends for the entire subbasin published by DWR (2003) indicate a general decline in groundwater levels from the 1960's through the 1980's, with periods of partial recovery followed by a return to drawdown conditions, through the present day. Groundwater recharge in Sacramento County, in the vicinity of the project site, occurs primarily near current and historic riverbeds and waterways, which contain sandy to silty soils. Areas along the American River to the north of the project site are considered to have a high capacity for groundwater recharge. However, soils that comprise the project site generally include clay soils and/or hardpan layers that have low transmissivity, which results in minimal infiltration of stormwater into the underlying aquifer. These areas are not conducive to substantial groundwater recharge (Sacramento County, 2011).

Groundwater levels on site have been monitored by DWR (2010) for several decades. One monitoring well (DWR well no. 08N06E15P001M), approximately 1,500 feet south of the southern end of the Mather Field runways, shows groundwater levels declining from about 52 feet below ground surface (bgs) to about 65 feet bgs during the period from 1960 to 1975. A well located immediately south of Mather Lake (DWR well no. 08N07E18E002M) has data available from 1985 to the present, and shows fairly stable groundwater levels from 1990 to 2000. Since 2000 groundwater levels at this well have been decreasing, from 113 feet bgs in November 2000 to 156 feet bgs in October 2008. Groundwater levels at this well were measured to be 150 feet bgs in July 2010. Although groundwater levels cycle on a seasonal and annual basis, due to drawdown and recharge periods, these ongoing groundwater level reductions are likely a result of local and

regional groundwater pumping in support of water demands for urban uses, agriculture, recreation, groundwater remediation, and other activities.

Groundwater quality in the vicinity of the project site is characterized by low to moderate levels of total dissolved solids, consisting primarily of calcium and magnesium salts (DWR, 2003). Groundwater on the project site has been contaminated as a result of historic activity at Mather Air Force Base. In addition to on-site contamination, the Aerojet General Corporation Superfund site is located to the northeast of the project site, and includes groundwater contamination from a variety of contaminants. For additional discussion of these sources of groundwater contamination, please refer to **Section 3.12**, Hazards and Hazardous Materials.

3.3.2 Regulatory Setting

3.3.2.1 Federal

Clean Water Act

The Clean Water Act established the basic structure for regulating discharges of pollutants into “waters of the United States.” The act specifies a variety of regulatory and nonregulatory tools to sharply reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff.

- Section 401 of the Clean Water Act requires every applicant for a federal permit or license for any activity that may result in a discharge to a water body to obtain a water quality certification that the proposed activity will not result in an exceedance of State water quality standards. In California, the authority to grant water quality certifications is delegated by the SWRCB to the nine Regional Water Quality Control Boards (RWQCBs).
- Section 402 of the Clean Water Act is the implementing regulation for the National Pollutant Discharge Elimination System (NPDES) stormwater program, which regulates the discharge of any pollutant into waters of the U.S. RWQCBs are authorized to enforce this program within California. Construction sites disturbing one acre or more of land are subject to the permitting requirements of the NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Construction Permit). The General Construction Permit requires the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP), as well as other measures to protect water quality during and following the construction period.
- Section 404 of the Clean Water Act establishes a program administered by the Corps to regulate the discharge of dredged and fill material into waters of the U.S., including wetlands. Activities in waters of the U.S. that are regulated under this program include fills for development, water resource projects (e.g., dams and levees), infrastructure (e.g., highways and airports), and conversion of waters to uplands for farming and forestry.

Federal Emergency Management Agency

FEMA has established the design standard for flood protection, with the minimum level of flood protection for new development determined to be the 1-in-100 annual exceedance probability (i.e., the 100-year flood event).

3.3.2.2 State

State Water Resources Control Board

Created by the California State Legislature in 1967, the State Water Resources Control Board (SWRCB) holds authority over water resources allocation and water quality protection within the state. The five-member SWRCB allocates water rights, adjudicates water right disputes, develops statewide water protection plans, establishes water quality standards, and guides the nine RWQCBs. Pursuant to Resolution No. 2008-0026, the SWRCB is developing a policy to protect wetland and riparian areas in support of water quality benefits, within the state; this policy has not been finalized.

Central Valley Regional Water Quality Control Board

As authorized by the Porter-Cologne Water Quality Control Act, the Central Valley Regional Water Quality Control Board's (CVRWQCB) primary function is to protect the quality of the waters within its jurisdiction for all beneficial uses. California Water Code §13050 defines beneficial uses of California's waters that may be protected against degradation to include, but not be limited to: domestic; municipal; agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves. The CVRWQCB implements water quality protection measures by formulating and adopting water quality control plans (referred to as basin plans) for specific groundwater and surface water basins, and by prescribing and enforcing requirements on all agricultural, domestic, and industrial waste discharges.

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3.4 Air Quality and Global Climate Change

This section addresses the existing air quality setting for the project site and vicinity. Greenhouse gases and global climate change are also discussed.

3.4.1 Existing Setting

The project site is located within the Sacramento Valley Air Basin which includes all of Sacramento, Butte, Colusa, Glenn, Shasta, Sutter, Tehama, Yolo, and Yuba Counties, the western portion of Placer County, and the eastern portion of Solano County.

3.4.1.1 Existing Air Quality

The California Air Resources Board (ARB) regional air quality monitoring network provides information on ambient concentrations of non-attainment criteria air pollutants. The closest air quality monitoring stations to the project site are located at Branch Center Road in an unincorporated area of Sacramento (monitors PM10) approximately one mile west of the project site, Sloughhouse Station (monitors ozone) approximately two miles southeast of the project site, and the Del Paso Manor station (monitors ozone, PM10, and PM2.5) approximately five miles north of the project site. **Table 3.4-1** presents a three-year summary of air pollutant (concentration) data collected at these monitoring stations for ozone, PM10, and PM2.5 (particulate matter (PM) that is 10 microns and 2.5 microns or less in diameter, respectively), the pollutants for which Sacramento County remains “non-attainment.” As indicated in the table, there were numerous exceedances of the state and national ozone standards, the state PM10 standards, and the state and national PM2.5 standards during the three-year summary period.

3.4.1.2 Sensitive Receptors

Some receptors are considered more sensitive than others to air pollutants. Reasons for greater sensitivity include pre-existing health problems, proximity to emissions sources, and/or duration of exposure to air pollutants. The nearest sensitive receptor to the project site is the Anatolia housing community on the east side of Sunrise Boulevard. This housing area would be as close as 600 feet from construction. The next closest sensitive receptors are the residences at the existing Independence at Mather housing community within the project site, which would be approximately 2,200 feet away from construction. Finally, the Sacramento Veteran’s Affairs Medical Center is located approximately 2,300 feet north of construction of proposed Airport Commercial land uses.

3.4.1.3 Criteria Air Pollutants

Criteria air pollutants are air pollutants that are regulated based on scientific criteria (human health-based and/or environmentally-based) for setting permissible levels. Federal and state standards for criteria air pollutants, as well as major sources and adverse health and atmospheric effects associated with criteria air pollutants are listed in **Table 3.4-2**.

**TABLE 3.4-1
AIR QUALITY DATA SUMMARY (2009-2011) FROM MONITORING STATIONS NEAR
THE PROJECT SITE**

Pollutant	Monitoring Data by Year		
	2009	2010	2011
Ozone – Sloughhouse Station			
Highest 1 Hour Average (ppm) ^b	0.122	0.121	0.123
Days over State Standard (0.09 ppm) ^a	11	3	9
Highest 8 Hour Average (ppm) ^b	0.099	0.104	0.094
Days over National Standard (0.075 ppm) ^a	24	8	19
Days over State Standard (0.070 ppm) ^a	34	13	27
Ozone – Del Paso Manor Station			
Highest 1 Hour Average (ppm) ^b	0.122	0.105	0.110
Days over State Standard (0.09 ppm) ^a	14	6	1
Highest 8 Hour Average (ppm) ^b	0.102	0.093	0.089
Days over National Standard (0.075 ppm) ^a	15	5	3
Days over State Standard (0.070 ppm) ^a	32	7	9
Particulate Matter (PM10) – Branch Center Road Station			
Highest 24 Hour Average – State/National ($\mu\text{g}/\text{m}^3$) ^b	76.0/76.0	63.0/62.0	73.0/69.0
Estimated Days over National Standard ($150 \mu\text{g}/\text{m}^3$) ^{a,c}	0	0	0
Estimated Days over State Standard ($50 \mu\text{g}/\text{m}^3$) ^{a,c}	12.2	12.2	12.2
State Annual Average (State Standard $20 \mu\text{g}/\text{m}^3$) ^{a,b}	26.4	21.0	25.1
Particulate Matter (PM10) – Del Paso Manor Station			
Highest 24 Hour Average – State/National ($\mu\text{g}/\text{m}^3$) ^b	48.0/45.0	44.0/44.0	66.0/62.0
Estimated Days over National Standard ($150 \mu\text{g}/\text{m}^3$) ^{a,c}	0	0	0
Estimated Days over State Standard ($50 \mu\text{g}/\text{m}^3$) ^{a,c}	0	0	12.2
State Annual Average (State Standard $20 \mu\text{g}/\text{m}^3$) ^{a,b}	18.7	16.3	20.7
Particulate Matter (PM2.5) – Del Paso Manor Station			
Highest 24 Hour Average ($\mu\text{g}/\text{m}^3$) ^b – National Measurement	49.8	33.9	54.3
Estimated Days over National Standard ($35 \mu\text{g}/\text{m}^3$) ^{a,c}	8.9	0	9.5
State Annual Average ($12 \mu\text{g}/\text{m}^3$) ^b	15.5	8.7	11.6

a Generally, state standards and national standards are not to be exceeded more than once per year.

b ppm = parts per million; $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter.

c PM10 and PM2.5 is not measured every day of the year. Number of estimated days over the standard is based on 365 days per year.

Values in **bold** exceed the respective air quality standard.

SOURCE: ARB, 2012a.

3.4.1.4 Toxic Air Contaminants

Toxic Air Contaminants (TACs) are airborne substances that are capable of causing short-term (acute) and/or long-term (chronic or carcinogenic, i.e., cancer causing) adverse human health effects (i.e., injury or illness). They may be emitted from a variety of common sources including gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations. The current California list of TACs includes approximately 200 compounds, including particulate emissions from diesel-fueled engines. For TACs, there is no federal or state ambient air quality standard against which to measure a project's air quality impacts. For this reason, TACs are analyzed by performing a health risk assessment.

**TABLE 3.4-2
STATE AND NATIONAL CRITERIA AIR POLLUTANT STANDARDS, EFFECTS, AND SOURCES**

Pollutant	Averaging Time	State Standard	National Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Ozone	1 hour	0.09 ppm	---	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Formed when reactive organic gases (ROG) and nitrogen oxides (NOx) react in the presence of sunlight. Major sources include on-road motor vehicles, solvent evaporation, and commercial / industrial mobile equipment.
	8 hours	0.070 ppm	0.075 ppm		
Carbon Monoxide	1 hour	20 ppm	35 ppm	Classified as a chemical asphyxiant, carbon monoxide interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm		
Nitrogen Dioxide	1 hour	0.18 ppm	0.100 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.
	Annual Avg.	0.030 ppm	0.053 ppm		
Sulfur Dioxide	1 hour	0.25 ppm	---	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	3 hours	---	0.5 ppm		
	24 hours	0.04 ppm	0.14 ppm		
	Annual Avg.	---	0.030 ppm		
Respirable Particulate Matter (PM10)	24 hours	50 µg/m ³	150 µg/m ³	May irritate eyes and respiratory tract, decreases in lung capacity, can cause cancer and increased mortality. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	Annual Avg.	20 µg/m ³	---		
Fine Particulate Matter (PM2.5)	24 hours	---	35 µg/m ³	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and results in surface soiling.	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning; Also, formed from photochemical reactions of other pollutants, including NOx, sulfur oxides, and organics.
	Annual Avg.	12 µg/m ³	15.0 µg/m ³		
Lead	Monthly Ave.	1.5 µg/m ³	---	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurological dysfunction.	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Quarterly	---	1.5 µg/m ³		
Hydrogen Sulfide	1 hour	0.03 ppm	No National Standard	Nuisance odor (rotten egg smell), headache and breathing difficulties (higher concentrations)	Geothermal power plants, petroleum production and refining.
Sulfates	24 hour	25 µg/m ³	No National Standard	Breathing difficulties, aggravates asthma, reduced visibility	Produced by the reaction in the air of SO ₂ .
Visibility Reducing Particles	8 hour	Extinction of 0.23/km; visibility of 10 miles or more	No National Standard	Reduces visibility, reduced airport safety, lower real estate value, discourages tourism.	See PM2.5.

ppm = parts per million; µg/m³ = micrograms per cubic meter.

SOURCES: ARB, 2012b and ARB, 2009

3.4.1.5 Odorous Emissions

Though offensive odors from stationary sources rarely cause physical harm, they are unpleasant and can lead to citizen complaints to local governments. There is no federal standard for odors. The Sacramento Metropolitan Air Quality Management District (SMAQMD) generally considers odor sources to have a substantial number of odor complaints if they have had one confirmed complaint per year averaged over a 3-year period or three unconfirmed complaints per year averaged over a 3-year period. The Sacramento Rendering Company plant is located at 11350 Kiefer Boulevard, just south of the eastern portion of the project site. According to SMAQMD, the Sacramento Rendering Company has had 268 odor complaints since July of 2007 (SMAQMD, 2010).

3.4.1.6 Greenhouse Gases and Global Climate Change

Gases that trap heat in the atmosphere are called greenhouse gases (GHGs). The accumulation of GHGs in the atmosphere has been linked to global climate change. Global climate change is a change in the average weather conditions on earth that can be measured by wind patterns, storms, precipitation, and temperature. Potential climate change impacts in California could include loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years. Secondary effects are likely to include a global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity. GHGs include all of the following naturally-occurring and anthropogenic (man-made) gases: carbon dioxide (CO₂), methane, nitrous oxide (N₂O), sulfur hexafluoride, perfluorocarbons, hydrofluorocarbons, and nitrogen trifluoride (NF₃) (California Health and Safety Code §38505(g)). CO₂ is the reference gas for climate change. To account for the warming potential of GHGs, and to combine emissions of gases with differing properties, GHG emissions are typically quantified and reported as CO₂ equivalents (CO₂e).

3.4.2 Regulatory Setting

3.4.2.1 Federal

Federal Clean Air Act

The Federal Clean Air Act (FCAA) requires the U.S. Environmental Protection Agency (USEPA) to identify National Ambient Air Quality Standards (national standards) to protect public health and welfare. National standards have been established for ozone, CO, NO₂, SO₂, PM₁₀, PM_{2.5}, and lead as shown in **Table 3.4-2**.

Pursuant to the 1990 FCAA Amendments, the USEPA classifies air basins (or portions thereof) as “attainment” or “nonattainment” for each criteria air pollutant, based on whether or not the national standards had been achieved. **Table 3.4-3** shows the current attainment status for the project site and surrounding area.

**TABLE 3.4-3
SACRAMENTO COUNTY ATTAINMENT STATUS**

Pollutant	Designation/Classification	
	Federal Standards	State Standards
Ozone – one hour	No Federal Standard	Nonattainment/Serious
Ozone – eight hour	Nonattainment/Severe	Nonattainment
PM10	Nonattainment/Moderate	Nonattainment
PM2.5	Nonattainment	Nonattainment
CO	Unclassified/Attainment	Attainment
Nitrogen Dioxide	Unclassified/Attainment	Attainment
Sulfur Dioxide	Unclassified	Attainment
Lead	Unclassified/Attainment	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility Reducing Particles	No Federal Standard	Unclassified

SOURCE: ARB, 2012c

The FCAA requires each state to prepare an air quality control plan referred to as the State Implementation Plan (SIP). The FCAA Amendments added requirements for states containing areas that violate the national standards to revise their SIPs to incorporate additional control measures to reduce air pollution.

Regulation of TACs, termed Hazardous Air Pollutants (HAPs) under federal regulations, is achieved through federal, state, and local controls on individual sources. The 1977 Clean Air Act Amendments required the USEPA to identify National Emission Standards for HAPs to protect public health and welfare.

Federal Conformity Requirements

The purpose of the General Conformity Rule (40 CFR Part 51, Subpart W) is to ensure that federal projects conform to applicable SIPs so that they do not interfere with strategies employed to attain the national standards. The rule applies to federal projects in nonattainment areas for national standards and in areas designated as “maintenance” areas (an area with a maintenance plan, meeting the requirements of section 175A of the FCAA).

A federal project that does not exceed the *de minimis* threshold rates specified in USEPA regulations may still be subject to a general conformity determination if the sum of direct and indirect emissions would exceed 10 percent of the emissions of the nonattainment or maintenance area. If emissions would exceed 10 percent, the federal project is considered “regionally significant,” and thus general conformity rules apply. If the emissions would not exceed the *de minimis* levels and are not regionally significant, then the project is assumed to conform, and no further analysis or determination is required.

If a federal action falls under the general conformity rule, the federal agency responsible for the action is responsible for making the conformity determination. General conformity with respect to the EIS alternatives would be determined before the Record of Decision is signed.

Council on Environmental Quality (CEQ) Draft GHG Guidance

On February 18, 2010, the Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions (CEQ, 2010) memorandum was published for public review and comment. As described in this memorandum, climate change analysis “should provide the decision maker with relevant and timely information about the environmental effects of his or her decision and reasonable alternatives to mitigate those impacts” (CEQ, 2010), and the following issues should be considered accordingly:

1. The GHG emissions effects of a proposed action and alternative actions; and
2. The relationship of climate change effects to a proposed action or alternatives, including the relationship to proposal design, environmental impacts, mitigation and adaptation measures.

As part of providing meaningful information to decision makers, the memorandum suggests that “if a proposed action would be reasonably anticipated to cause direct emissions of 25,000 metric tons or more of CO₂-equivalent GHG emissions on an annual basis, agencies should consider this an indicator that a quantitative and qualitative assessment may be meaningful to decision makers and the public” (CEQ, 2010).

3.4.2.2 State

State of California Criteria Air Pollutant Standards

California has adopted more stringent state ambient air quality standards (state standards) for most of the criteria air pollutants and has established state ambient air quality standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are shown in **Table 3.4-2** above. The California Clean Air Act (CCAA), which is patterned after the FCAA, also requires areas to be designated as “attainment” or “non-attainment” for the state standards. Thus, areas in California have attainment/non-attainment designations for both national and state standards. These designations for the Project area are depicted above in **Table 3.4-3**.

State of California Toxic Air Contaminants Standards

The State Air Toxics Program was established in 1983 under Assembly Bill (AB) 1807 (Tanner). A total of 243 substances have been designated TACs under California law; they include the 189 federal HAPs adopted in accordance with AB 2728. The Air Toxics “Hot Spots” Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources; however, AB 2588 does not regulate air toxics emissions. TAC emissions from individual facilities are quantified and prioritized. “High-priority” facilities are required to perform a health risk assessment and, if specific thresholds are violated, are required to communicate the results to the public in the form of notices and public meetings.

In August of 1998, ARB identified particulate emissions from diesel-fueled engines (diesel particulate matter, or DPM) as TACs. ARB subsequently developed the Proposed Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles (ARB, 2000). The

document represents proposals to reduce diesel particulate emissions, with the goal of reducing emissions and associated health risks by 75 percent in 2010 and by 85 percent in 2020.

ARB recently published the Air Quality and Land Use Handbook: A Community Health Perspective (ARB, 2005). The primary goal in developing the handbook was to provide information that will help keep California's children and other vulnerable populations out of harm's way with respect to nearby sources of air pollution. ARB provides general recommendations aimed at keeping appropriate distances between sources of air pollution and sensitive land uses, such as residences.

State of California Greenhouse Gas Standards

In 2005, in recognition of California's vulnerability to the effects of climate change, Governor Schwarzenegger established Executive Order S-3-05, which sets forth a series of target dates by which statewide emission of greenhouse gas would be progressively reduced, as follows:

- By 2010, reduce greenhouse gas emissions to 2000 levels;
- By 2020, reduce greenhouse gas emissions to 1990 levels; and
- By 2050, reduce greenhouse gas emissions to 80 percent below 1990 levels.

Assembly Bill 32 (AB 32)

In 2006, California passed the California Global Warming Solutions Act of 2006 (California Health and Safety Code Division 25.5, Sections 38500, et seq., or AB 32), which requires the ARB to design and implement emission limits, regulations, and other measures, such that statewide greenhouse gas emissions will be reduced to 1990 levels by 2020. It is estimated that to comply with AB 32's mandate, GHG emission would need to be reduced from 596 million metric tons (MMTs) of CO₂ equivalent (i.e., 2020 "business as usual") to 427 MMTs (the 1990 level), which is a reduction of 30%. This latter forecast did not take any credit for reductions from measures included in the AB 32 Scoping Plan, including the Pavley GHG emissions standards for vehicles, full implementation of the Renewables Portfolio Standard beyond current levels of renewable energy, or solar measures.

AB 32 required development of a mandatory reporting rule for major sources of GHGs. The ARB reporting rule (California Code of Regulations Title 17, Subchapter 10, Article 2, §95100 to 95133) became effective in January 2009. The rule requires reporting of GHG emissions for a variety of industrial and energy uses, in addition to other facilities that emit over 25,000 metric tons of CO₂e, for stationary combustion sources, in any calendar year.

The Climate Change Scoping Plan (ARB, 2008) was approved and adopted by the ARB Board on December 11, 2008. The Climate Change Scoping Plan includes recommended measures to reduce GHG emissions from key sources and activities. These measures would assist the state in meeting the long-term 2050 goal of reducing California's GHG emissions to 80 percent below 1990 levels. The total reduction for the recommended measures is 174 MMT/year of CO₂e, slightly exceeding the 169 MMT/year of CO₂e reductions estimated to be needed in the Climate Change Draft Scoping Plan.

3.4.2.3 Local

Sacramento County Draft Climate Action Plan

Sacramento County has developed a Draft Climate Action Plan, Phase 1 (Sacramento County, 2009) to provide a framework for reducing GHG emissions. The Draft Climate Action Plan, Phase 1 summarizes actions that the County has taken and action the County is considering for future implementation to comply with AB 32.

Sacramento Metropolitan Air Quality Management District (SMAQMD)

The project site lies within the jurisdiction of the SMAQMD, the agency empowered to regulate air pollutant emissions from stationary sources in Sacramento County and develop air quality plans. The 2009 Sacramento Metropolitan Area 8-hour Ozone Attainment and Reasonable Further Progress Plan (SMAQMD et al., 2008) is the current federal air quality plan for the Sacramento metropolitan area. The 2009 ozone plan sets out a strategy for attaining the 1997 federal 8-hour ozone standard in the Sacramento Nonattainment Area by 2018. With respect to the national CO standard, the revised plan includes a “maintenance” plan that demonstrates how Sacramento County will continue to maintain CO concentrations below the standard.

Pursuant to state air quality planning requirements, the 1991 Sacramento Air Quality Attainment Plan, was developed to reduce population exposure to unhealthy levels of ozone. The most recent update is the 2009 Triennial Report and Plan Revision (SMAQMD, 2009), adopted December 2009, which identifies “all feasible measures” the SMAQMD will analyze or adopt over the next three years.

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SMAQMD, et al., 2008. Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan. December 19, 2008.

U.S. Environmental Protection Agency (USEPA), 2011. PSD and Title V Permitting Guidance for Greenhouse Gases. March 2011.

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3.5 Biological Resources

The assessment of existing conditions and analysis of potential effects is based upon field surveys, a review of applicable databases, species literature, and several technical reports. The profiles of biological resources in this section provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Chapter 4.0**. This section focuses upon special-status species and their habitats. Additional information about wetlands and other waters of the U.S. that are regulated under Section 404 of the Clean Water Act is addressed in **Section 3.6**, Aquatic Resources.

3.5.1 Existing Setting

3.5.1.1 Regional Setting

The project site is located along the eastern edge of the Sacramento Valley within the Sacramento Valley Vernal Pool Region. The project site is also located in the Hardpan Terraces ecological subregion. Regional natural plant communities within this subregion include California annual grassland, needlegrass grassland and northern hardpan vernal pools. Climate is typically hot and semi-arid to subhumid. Mean annual precipitation is approximately 10 to 25 inches. Mean annual temperature ranges from 58 to 62 degrees Fahrenheit (Miles and Goudey, 1997).

3.5.1.2 Project Site Setting

The project location and general setting are described in **Section 1.2**. The project region is characterized as primarily flat with a discernible slope towards the southwest; however the project site exhibits a slightly undulating topography characterized by vernal swales and pools intersected by small drainages and creeks. Overall, site elevations range from 65 feet above sea level in the southwestern corner to 150 feet above sea level along the eastern border (U.S. Geological Survey [USGS], 1980 and 1992).

3.5.1.3 Vegetative Communities and Wildlife Habitats

The plant community descriptions and nomenclature used in this section generally follow the classification system of *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer, 1988) and the classification provided in Sawyer and Keeler-Wolf's *A Manual of California Vegetation* (1995). The California Wildlife Habitat Relationships (CWHR) habitat classification scheme has been developed to support the CWHR System, a wildlife information system and predictive model for California's regularly occurring birds, mammals, reptiles, and amphibians.

A number of biological studies have been conducted previously within portions of the project site. These resulted in the following reports: *Mather Field Airport Natural Resources Assessment* (Wetlands Research Associates, 2004c), *Final Report for Mather Field Vernal Pool Study* (Jones & Stokes, 2001), and the *South Mather Wetlands Management Plan* (Sacramento County, 2012). In addition, wetlands and other waters of the U.S. were delineated in 2004 (Wetlands Research Associates, 2004a and 2004b) and re-verified in 2011 (Sacramento County, 2011). Vegetation within the project site was also classified through remote sensing techniques by Sacramento

County for the South Sacramento Habitat Conservation Plan (Sacramento County, 2007). Existing vegetation types within the project site were derived from these data sources in addition to field investigations. Field conditions were verified by ESA biologists in July 2010 and subsequently mapped (**Figure 3.5-1** and **Table 3.5-1**).

**TABLE 3.5-1
HABITAT TYPES WITHIN PROJECT SITE**

Habitat Type	Acres ¹	Percent Composition
Annual Grassland	2,784.5	48.4%
Cottonwood Woodland	73.3	1.3%
Disturbed / Ruderal	87.3	1.5%
Drainage Ditch (Riverine)	2.5	<0.1%
Lake / Pond (Lacustrine)	46.3	0.8%
Recreation / Landscaped	216.7	3.8%
Seasonal Wetland	52.6	0.9%
Stream Channel (Riverine)	24.5	0.4%
Urban/Developed	2,374.6	41.3%
Valley Foothill Riparian	14.4	0.3%
Vernal Pool / Vernal Swale	72.6	1.3%
Total	5749.4	100.0%

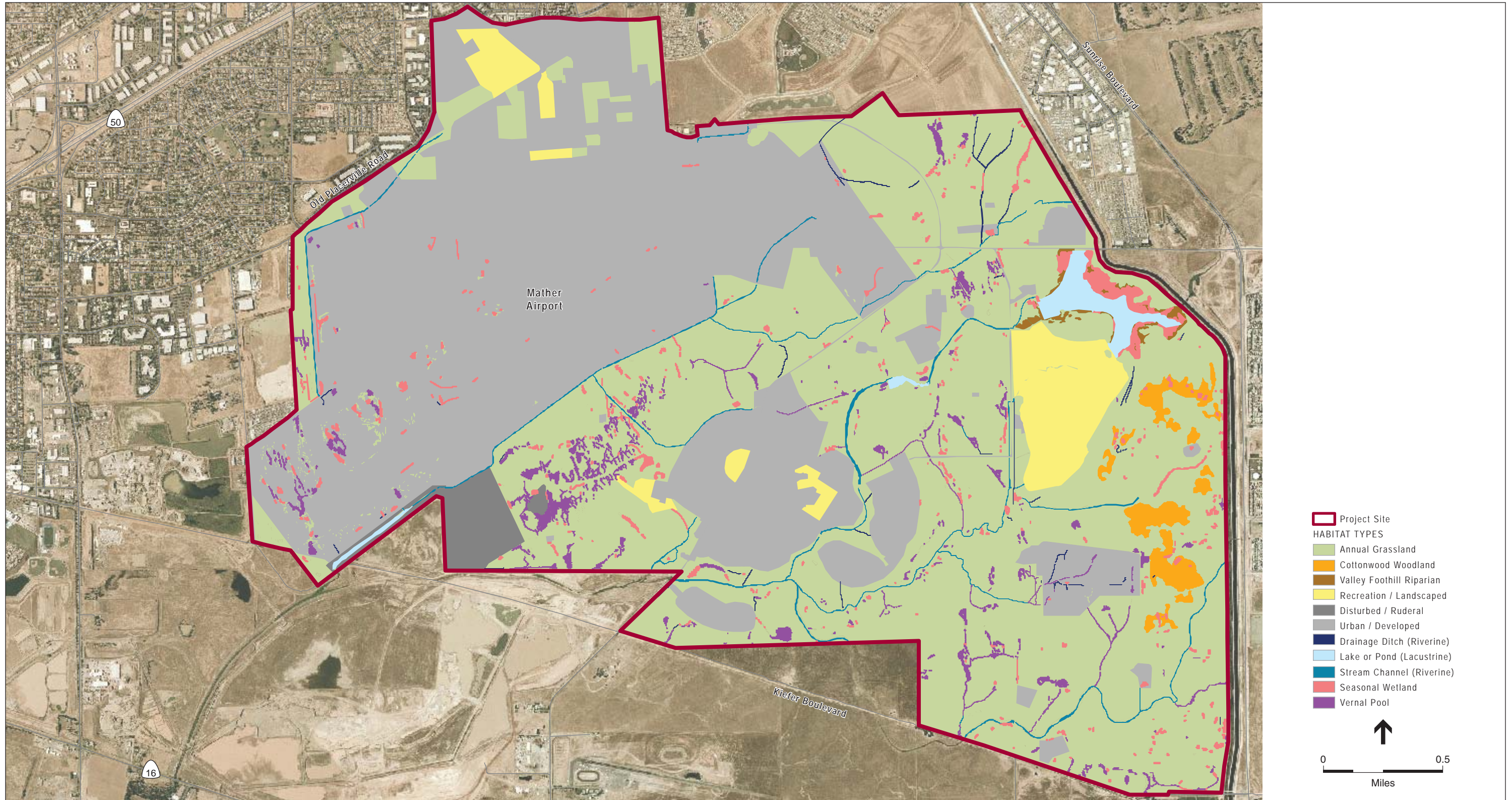
¹All acres approximate.

SOURCE: Sacramento County, 2007; Sacramento County, 2011; ESA, 2010

Annual Grassland / California Annual Grassland Series

Annual grassland habitat type makes up the majority of the project site. Annual grasslands have been modified by past land uses, including off-road vehicle use, military uses and dumping. Other areas were modified by grading activities conducted for roadway improvements, residential developments, recreation facilities, and construction of the Folsom South Canal. This vegetation type is dominated by non-native annual grasses and weedy annual and perennial forbs, primarily of Mediterranean origin, that have replaced native perennial grasslands and scrub as a result of human disturbance. On the project site, non-native annual grassland surrounds vernal pool complexes, providing an important upland element that may be used for species movement and dispersal between pools.

Common grass species that have been documented within the project site include silver hairgrass (*Aira caryophylla*), slender wild oat (*Avena barbata*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), and Italian ryegrass (*Lolium multiflorum*). Native wildflowers documented in the project site include elegant brodiaea (*Brodiaea elegans*), Fremont's tidy-tips (*Layia fremontii*), miniature lupine (*Lupinus bicolor*), vinegar weed (*Trichostema lanceolatum*), white-tipped clover (*Trifolium variegatum*), white hyacinth (*Triteleia hyacinthina*), and butter and eggs (*Triphysaria eriantha*). Invasive plants documented in the project site include yellow starthistle (*Centaurea solstitialis*), milk thistle (*Silybum marianum*), Italian thistle (*Carduus pycnocephalus*), medusahead grass (*Taeniatherum caput-medusae*), yellow glandweed (*Parentucellia viscosa*), barbed goatgrass (*Aegilops triuncialis*), and stinkwort (*Dittrichia graveolens*).



SOURCE: WRA, 2004a; WRA, 2004b; NAIP, 2006; Sacramento County, 2007; and ESA, 2012

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Figure 3.5-1
Habitat Types on the Project Site

Cottonwood Woodland / Fremont Cottonwood Series

Within the project site, this habitat type occurs in scattered patches near the east boundary within historically disturbed areas. This community also occurs as patches along some of the intermittent streams where oaks are sometimes present within the open canopy (WRA, 2004c).

Fremont cottonwood (*Populus fremontii*) is the sole or dominant tree in the canopy of this native vegetation community. The canopy is continuous or open and the understory is variable, typically consisting of annual grassland species or scattered coyote brush (*Baccharis pilularis*) shrubs. While this community typically occurs where soils are intermittently or seasonally flooded or saturated, such as riparian areas, within the project site it is not associated with a more typical riparian or wetland community and primarily occurs where groundwater is shallow. Other native species that are present in these stands include narrowleaf willow (*Salix exigua*), arroyo willow (*S. lasiolepis*), and California sycamore (*Platanus racemosa*), although in many of these stands the understory is lacking a shrub component and consists primarily of annual grassland species (WRA, 2004c).

Disturbed / Ruderal

This habitat type includes those areas that have been substantially graded, excavated, or in other ways disturbed by past land uses. Within the project site, this includes old settling ponds near the southwest corner. These areas are currently barren or support weedy species such as prickly lettuce (*Lactuca serriola*), hyssop loosestrife (*Lythrum hyssopifolia*), curly dock (*Rumex crispus*), wild radish (*Raphanus sativus*), and black mustard (*Brassica nigra*).

Drainage Ditches and Stream Channels (Riverine)

Various types of ditches and drainages are found on the project site, including roadside ditches and storm drains. Morrison Creek is the primary stream channel within the project site. Various small ephemeral tributaries also feed into Morrison Creek. These riverine communities are typically characterized by a mixture of species commonly found in lacustrine, seasonal wetland, and freshwater marsh communities.

Common species found within or adjacent to these channels include water primrose (*Ludwigia peploides*), willow smartweed (*Persicaria lapathifolia*), and algae. Along channel edges and on banks common species include creeping spikerush (*Eleocharis macrostachya*), Bermuda grass (*Cynodon dactylon*), pennyroyal (*Mentha pulegium*), Italian ryegrass, Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), and hyssop loosestrife. Within more heavily disturbed roadside ditches and drainages, a variety of ruderal species as described in the disturbed / ruderal community are also present.

Lakes / Ponds (Lacustrine)

Open water, or lacustrine, habitat in the project site occurs in Mather Lake, a small impoundment of a tributary to Morrison Creek. The margins of Mather Lake also support emergent marsh, seasonal wetlands, and riparian species.

Recreation

Within the project site, recreation habitats include Mather Golf Course and several small community parks. Mather Golf Course provides limited habitat opportunities for wildlife, with turf, landscape trees, and open water being the primary habitat constituents. Landscaped areas typically receive a high degree of maintenance, including mowing, chemical application, irrigation, and pest control. It is similar to urban landscapes due to the high amount of human activity.

Seasonal Wetland

The seasonal wetland vegetation community has some similarities to the vernal pool habitat type (see below), but differs due to differences in topography, duration of inundation, and/or plant species composition. This community occurs in shallow depressions within annual grassland (either due to natural topographic features or previous site disturbance) or in man-made drainage ditches and supports annual hydrophytic plant species, but generally in much lower numbers and/or with much less native species diversity than that of vernal pools. Within the project site, common plant species in the seasonal wetland community include Vasey's coyote thistle, Fitch's spikeweed (*Centromadia fitchii*), and creeping spikerush, but the dominant plant species include non-native plants such as Mediterranean barley, Italian ryegrass, and hawkbit (*Leontodon saxatilis*).

Urban / Developed

Within the project site, urban habitats make up the second largest habitat type. Urban habitats include Mather Airport and surrounding developed areas, the Independence at Mather residential development, communication facilities, roadways, and other paved areas. While some of these areas include patches of annual grassland habitat (such as areas at the end of the airport runway), they are functionally serving as urban environments due to the high amount of human activity within their immediate vicinity.

Urban or developed habitats are those dominated by plant species introduced by humans and established or maintained by human disturbances or activities. On such sites, the native vegetation has been removed and replaced by landscaping or urban development. Grassy areas are common, and generally consist of Kentucky bluegrass (*Poa pratensis*), red top (*Agrostis alba*), and creeping red fescue (*Festuca rubra*). Various shrub species have been planted, including juniper (*Juniperus* sp.) and oleander (*Nerium oleander*). Landscape trees are common in the residential areas and include ash species (*Fraxinus* spp.), gum trees (*Eucalyptus* spp.), poplars (*Populus* spp.), fan palms (*Washingtonia filifera*), cedars (*Cedrus* spp.), and several pine species (*Pinus* spp.).

Valley Foothill Riparian / Mixed Willow Series

This native vegetation community consists of an open to dense, broadleafed, winter-deciduous shrubby streamside thicket dominated by Fremont cottonwood and arroyo willow. The densest stands have little understory or herbaceous component but do support occasional patches of emergent species including rushes, spikerushes, bulrush, and cattail, while the more open stands have grassy understories vegetated by non-native annual grass species. Within the project site, this vegetation community most commonly occurs as patches along the shores of Mather Lake (WRA, 2004c).

Vernal Pool

Vernal pools are ephemeral wetlands that form in shallow depressions underlain by an impervious or restrictive soil layer near the surface that impedes the percolation of water. Vernal pools pond during the wet season and become dry in late spring or early summer. Germination and growth begin with winter rains, often continuing even when inundated. The vernal pools within the project site have been classified as northern hardpan vernal pools (Holland, 1986), and have formed on old, very acidic, iron-silica cemented hardpan soils.

Vernal pools are present throughout the project site, however the highest density and, in general, highest functioning vernal pools are present between Mather Airport and Independence at Mather. Additional discussion regarding vernal pool functions within the project site is included in **Section 3.5.1.7, Suitable Habitat for Vernal Pool Species**. Within the proposed Preserve, there are two different groups of vernal pools (eastern vs. western) that are distinguished by elevation and soil types.

Vernal pools within the eastern part of the proposed Preserve occur on thin, rocky soils mainly classified as Redding Gravelly Loam. These pools tend to be shallow and pond water for a shorter period of time, relative to pools in other parts of the proposed Preserve. They also tend to be more similar to those pools located outside of the proposed Preserve to the east within the proposed University Village and Regional Sports Park land use areas. These pools are typically vegetated by white navarretia (*Navarretia leucocephala*) and other vernal pool plant species including Fremont's goldfields (*Lasthenia fremontii*), slender popcorn-flower (*Plagiobothrys stipitatus*), and dwarf woolly-heads (*Psilocarphus brevissimus*). There are also substantial blooms of Douglas' mesamint (*Pogogyne douglasii*) among these pools. While this plant does not have a special-status ranking, it is restricted in Sacramento County to only a handful of locations. Two special-status plant species that have been documented within these pools are described in Section 3.5.1.6. These are Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*) and Boggs Lake hedge-hyssop (*Gratiola heterosepala*).

Pools found in the western part of the proposed Preserve differ in that they occur at a lower elevation and are concentrated on soils mainly mapped as Hedge Loam soils. These pools are also affected by hydrologic modifications created by a berm running through the vernal pools in an east/west direction along the route of an existing sewer pipeline. These pools are inundated longer and support a different suite of species than other pools within the proposed Preserve (WRA, 2004c). The plant species observed within these pools are dominated by vernal pool buttercup (*Ranunculus bonariensis* var. *trisepalus*). There is also a large component of iris-leaf rush (*Juncus xiphioides*) due to the longer ponding duration. The vast majority of the legenere (*Legenere limosa*) populations, a special-status species, occur among these pools. Other plant species observed include creeping spikerush, coyote thistle (*Eryngium castrense*), and smooth goldfields (*Lasthenia glaberrima*).

Pools within the proposed Airport Commercial Area are similar in size to pools found in the western part of the proposed Preserve, have formed on similar soils, and support a similar suite of plants. Pools in protected areas west of the Mather Airport runway more closely resemble pools found in the eastern part of the proposed Preserve and are characterized by similar plant species

composition, soils, and geomorphic settings. Both legenere and Ahart's dwarf rush have been reported from these pools (WRA, 2004a).

Additionally, the project site contains a number of features that have been previously mapped as "vernal marsh" and "vernal swale" (WRA, 2004a). Vernal marshes are similar to vernal pools in that they support many of the same species; however, the growing season for vernal marsh vegetation is typically later than in vernal pools, with peak blooms occurring into the late spring and early summer, one to two months after the peak vernal pool flowering period. This native vegetation community consists of low-growing hydrophytic plant species, dominated (more than 50 percent cover) by perennial species but also containing annual herbs. Within the project site, this vegetation community generally occurs in depressions deeper than those which support northern hardpan vernal pool or seasonal wetland vegetation communities (WRA, 2004b). The dominant species in this community are creeping spikerush and/or iris-leaved rush, both native emergent perennial plants; other common native species observed in these aquatic features on the project site include dwarf woolly-heads and Vasey's coyote thistle (*Eryngium vaseyi*) (WRA, 2004b).

Vernal swales are somewhat linear, concave depressions that form in topographically complex grasslands and commonly connect to vernal pools, seasonal wetlands, or water courses. Vernal swales are characterized by soil and hydrologic conditions similar to those of vernal pools; vernal swales are found throughout the project site and generally support many of the same plants as vernal pools.

The vernal pools in the project site have the potential to support a number of special-status plant species, including slender Orcutt grass (*Orcuttia tenuis*) and Sacramento Orcutt grass (*Orcuttia viscida*). In particular, the larger, deeper vernal pools which retain water until May or June provide optimal conditions for all member of the Orcuttieae tribe (USFWS, 2005).

Many of the wildlife species occurring in vernal pools are adapted to ephemeral habitat conditions. A number of invertebrates have been observed in and around the vernal pools on site and include aquatic beetles (*Dystiscidae* and *Hydrophilidae*), snails (*Gastropoda*), clam shrimp (*Cyzicus californicus*), seed shrimp (*Ostracoda*), dragon flies (*Anisoptera*), and solitary bees (*Andrenidae*), as well as special-status species such as vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), California linderiella (*Linderiella californica*), midvalley fairy shrimp (*Branchinecta mesovallensis*) and Ricksecker's water scavenger beetle (*Hydrochara rickseckeri*). Additional species of wildlife are discussed in Section 3.5.1.5.

3.5.1.4 Sensitive Habitats

For the purpose of this EIS, sensitive habitats include a) areas of special concern to federal, state, or local agencies, b) areas regulated under Section 404 of the federal Clean Water Act, and c) areas protected under state and local regulations and policies. Federally designated critical habitat for species listed under the ESA is discussed in Section 3.5.1.6 below. Habitat types on the project site that would be considered sensitive by regulatory agencies include vernal pools and vernal swales, other seasonal wetlands, and valley foothill riparian areas. Riparian habitats are considered by state and federal regulatory agencies to represent a sensitive and declining resource. There are scattered

oaks throughout the project site, some of which are locally protected by the Sacramento County Tree Ordinance.

3.5.1.5 Wildlife

Approximately 20 species of mammals have been recorded in the project site (USAF, 1992). Species common to the site include the black-tailed jackrabbit (*Lepus californicus*), Audobon's cottontail (*Sylvilagus audobonii*), raccoon (*Procyon lotor*), and California ground squirrel (*Otospermophilus beecheyi*). Coyote (*Canis latrans*), gray fox (*Urocyon cinereoargenteus*), and badger (*Taxidea taxus*) have also been documented. Other mammals that commonly occur include Botta's pocket gopher (*Thomomys bottae*), broad-footed mole (*Scapanus latimanus*), California meadow vole (*Microtus californicus*), western harvest mouse (*Reithrodontomys megalotis*), and deer mouse (*Peromyscus maniculatus*).

Various bird species are known to make use of the project site, many as year-round residents and many as winter residents and transient visitors. Raptors on the site are generally transient rather than residents due to the lack of suitable nesting sites. The red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), sharpshinned hawk (*Accipiter striatus*), northern harrier (*Circus cyaneus*), American kestrel (*Falco sparverius*), barn owl (*Tyto alba*), great-horned owl (*Bubo virginianus*), and short-eared owl (*Asio flammeus*) have all been documented on the site. Prairie falcons (*Falco mexicanus*) may occasionally hunt on the site. The burrowing owl (*Athene cunicularia*) is known to nest in open areas of the project site. Additional species that have been observed foraging in the area include golden eagle (*Aquila chrysaetos*), short-eared owl (*Asio flammeus*), white-tailed kite (*Elanus leucurus*), and loggerhead shrike (*Lanius ludovicianus*).

Mather Lake and other waters attract numerous waterfowl species, including mallards (*Anas platyrhynchos*), teals (*Anas* spp.), American coots (*Fulica americana*), common mergansers (*Mergus merganser*), and hooded merganser (*Lophodytes cucullatus*). Wading birds such as the great blue heron (*Ardea herodias*) are attracted to the lake's shallow shoreline and abundant prey. The belted kingfisher (*Ceryle alcyon*) also preys on the lake's fish. Birds that inhabit the project site's grasslands include the western meadowlark (*Sturnella neglecta*), Brewer's blackbird (*Euphagus cyanocephalus*), yellow-billed magpie (*Pica nuttalli*), California quail (*Callipepla californica*), and mourning dove (*Zenaida macroura*). Many birds that are well-adapted to urban environments inhabit residential and landscaped areas. These species include the house sparrow (*Passer domesticus*), barn swallow (*Hirundo rustica*), American robin (*Turdus migratorius*), European starling (*Sturnus vulgaris*), house finch (*Carpodacus mexicanus*), American crow (*Corvus brachyrhynchos*) and rock pigeon (*Columba livia*).

Snakes assumed to be present within the project site include the California kingsnake (*Lampropeltis getula californiae*), Pacific gopher snake (*Pituophis catenifer catenifer*), western rattlesnake (*Crotalus viridis*), and western yellow-bellied racer (*Coluber constrictor mormon*). The northwestern pond turtle (*Clemmys marmorata marmorata*) has been documented within Mather Lake, and likely occurs in Morrison Creek during wet periods. Southern alligator lizard (*Elgaria multicarinata*) and western fence lizard (*Sceloporus occidentalis*) have also been observed in the project site. Amphibians known to occur on the project site include spadefoot (*Spea hammondi*), western toad (*Bufo boreas*), Sierran treefrog (*Pseudacris sierra*), and bullfrog (*Rana catesbeiana*).

3.5.1.6 Wildlife Corridors

Wildlife corridors are established migration routes commonly used by resident and migratory species for passage from one location to another. Maintaining the continuity of established wildlife corridors is important to a) sustain species with specific foraging requirements, b) preserve a species' distribution potential, and c) retain diversity among many wildlife populations. Habitat loss, fragmentation, and degradation resulting from a change in land use or habitat conversion can alter the use and viability of wildlife movement corridors. According to Beier and Loe (1992), wildlife habitat corridors should fulfill several functions. They should maintain connectivity for daily movement, travel, mate-seeking, and migration; plant propagation; genetic interchange; population movement in response to environmental change or natural disaster; and recolonization of habitats subject to local extirpation.

The riparian corridors along Morrison Creek and its tributaries provide suitable habitat for resident wildlife, but do not provide for large-scale migratory movement, and/or dispersal for common or rare fish and wildlife species due to fragmentation caused by Douglas Road, Eagles Nest Road, Independence at Mather, Kiefer Boulevard and Excelsior Road.

The overall value of the project site as a wildlife movement corridor for terrestrial wildlife is limited by these roads and residential development and existing land uses surrounding the project site, including residential, industrial and commercial uses.

The vernal pool landscape in the southern and eastern portions of the project site provides an important connection to other areas of vernal pool habitat to the south. This includes those areas within the Mather Core Area of the *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (USFWS, 2005). Providing continuity with the larger vernal pool landscape to the south is important to ensure that vernal pool species on the project site do not become isolated geographically and genetically from neighboring populations.

3.5.1.7 Potentially Affected Species and Habitats

Methodology

A list of special-status plant and wildlife species that have the potential to occur within the vicinity of the project site was compiled based on a background information search for previously documented special-status species within the project vicinity. The California Natural Diversity Database (CNDDDB) Rarefind program (California Department of Fish and Game [CDFG], 2012) and the U.S. Fish and Wildlife Service (USFWS) online list (USFWS, 2012b) were queried for the Carmichael and Buffalo Creek, California 7.5-minute quadrangles (**Appendix D**). Project site habitats were also evaluated for their suitability to support special status species. The results of these assessments are summarized in **Table 3.5-2**. Conclusions regarding habitat suitability and species occurrence are based on a reconnaissance-level assessment conducted by ESA biologists in the summer of 2010, as well as previous survey results, existing literature and database searches. Potentially affected species are shown in **bold**.

**TABLE 3.5-2
LIST OF POTENTIALLY AFFECTED SPECIES**

Species	Status Federal/ State/ CNPS	Suitable Habitat	Potential for Project to Effect
FEDERALLY LISTED SPECIES			
Invertebrates			
<i>Branchinecta conservatio</i> Conservancy fairy shrimp	FE/--/--	Occurs in large, turbid vernal pools in the northern two-thirds of the Central Valley. Pools are typically astatic and are formed in old, braided alluvium.	Not likely to affect. Currently this species does not occur in the Mather Core area.
<i>Branchinecta lynchi</i> Vernal pool fairy shrimp	FT/--/--	Occurs in vernal pools, seasonally ponded areas within vernal swales, rock outcrop ephemeral pools, playas and alkali flats from Shasta County through most of the length of the Central Valley to Tulare County. Pools are grass or mud bottomed, with clear to tea-colored water, and are often in basalt flow depression pools in grasslands	May effect. Suitable habitat is present in the project site and the species has been recorded from several vernal pools within the project site.
<i>Desmocerus californicus dimorphus</i> Valley elderberry longhorn beetle	FT/--/--	Breeds and forages exclusively on elderberry shrubs (<i>Sambucus mexicana</i>) typically associated with riparian forests, riparian woodlands, elderberry savannas, and other Central Valley habitats. Occurs only in the Central Valley of California. Prefers to lay eggs in elderberries 2–8 inches in diameter; some preference shown for “stressed” elderberries.	May effect. Suitable habitat is present in the project site. There are no known occurrences of this species within project site. The nearest recorded occurrence is 1.5 miles north of the project site.
<i>Lepidurus packardii</i> Vernal pool tadpole shrimp	FE/--/--	Occurs in vernal pools containing clear to highly turbid water.	May effect. Suitable habitat is present in the project site and the species has been recorded from numerous vernal pools within the project site.
Fish			
<i>Hypomesus transpacificus</i> Delta smelt	FT/ST/--	Open surface waters in the Sacramento/San Joaquin Delta. Seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay. Found in Delta estuaries with dense aquatic vegetation and low occurrence of predators.	No effect. No suitable habitat within the project site.
<i>Oncorhynchus mykiss</i> Central Valley steelhead	FT/--/--	This evolutionary significant unit (ESU) enters the Sacramento and San Joaquin Rivers and their tributaries from July to May; spawning from December to April. Young move to rearing areas in and through the Sacramento and San Joaquin Rivers, Delta, and San Pablo and San Francisco Bays.	No effect. No suitable habitat within the project site.
<i>Oncorhynchus tshawytscha</i> Central Valley spring-run Chinook salmon	FT/ST/--	This ESU enters the Sacramento and San Joaquin Rivers and tributaries March to July; spawning from late August to early October. Young move to rearing areas in and through the Sacramento and San Joaquin Rivers, Delta, and San Pablo and San Francisco Bays.	No effect. No suitable habitat within the project site.

**TABLE 3.5-2
LIST OF POTENTIALLY AFFECTED SPECIES**

Species	Status Federal/ State/ CNPS	Suitable Habitat	Potential for Project to Effect
<i>Oncorhynchus tshawytscha</i> Sacramento River winter-run Chinook salmon	FE/SE/--	This ESU enters the Sacramento River December to May; spawning peaks May and June. Upstream movement occurs more quickly than in spring run population. Young move to rearing areas in and through the Sacramento River, Delta, and San Pablo and San Francisco.	No effect. No suitable habitat within the project site.
Amphibians			
<i>Ambystoma californiense</i> California tiger salamander, central population	FT/CSC/--	Annual grassland and grassy understory of valley-foothill hardwood habitats in central and northern California. Needs underground refuges and vernal pools or other seasonal water sources.	Not likely to affect. Suitable habitat exists in the project site, although populations have not been documented in this area and surveys of pools have not detected larvae of this species. The nearest recorded occurrence is 12.5 miles southeast of the project site
<i>Rana draytonii</i> California red-legged frog	FT/CSC/--	Breeds in slow moving streams, ponds, and marshes with emergent vegetation and an absence or low occurrence of predators.	Not likely to affect. Potential habitat for this species (perennial streams, ponds, and Mather Lake) is populated by exotic predators, such as bullfrogs and centrarchids. There are no known occurrences in the project site vicinity.
Reptiles			
<i>Thamnophis gigas</i> Giant garter snake	FT/CT/--	Found primarily in marshes, sloughs, drainage canals, and irrigation ditches, especially around rice fields, and occasionally in slow-moving creeks in California's interior.	Not likely to affect. Project site is located outside of the extant range of this species and the nearest recorded occurrence is approximately 10 miles to the southwest. Ditches are well maintained and provide limited habitat opportunities for the species.
Birds			
<i>Aquila chrysaetos</i> Golden eagle	BEPA/CFP/--	Forages in open terrain such as grasslands, deserts, savannahs, and early successional stages of forest and shrub habitats.	May effect. Suitable nesting habitat is not present; however the species has been observed foraging within the project site along Eagles Nest Road.
Plants			
<i>Orcuttia tenuis</i> Slender Orcutt grass	FT/CE/1B.1	Small annual grass found in vernal pools in valley and foothill grasslands. Blooms: May-September. Elevation: 100 to 5,750 ft.	May effect. Suitable habitat is present within the project site, although no known occurrences have been recorded within the project site. The nearest recorded occurrence is within one mile of the project site.
<i>Orcuttia viscida</i> Sacramento Orcutt grass	FE/CE/1B.1	Small annual grass found in vernal pools in valley and foothill grasslands. Blooms: May-June. Elevation: 100 to 350 ft.	May effect. Suitable habitat is present within the project site, although no known occurrences have been recorded within the project site. The nearest recorded occurrence is within one mile of the project site.
Critical Habitat			
<i>Branchinecta lynchi</i> - Vernal pool fairy shrimp	Critical Habitat		May effect. Critical Habitat unit occurs within project site.

**TABLE 3.5-2
LIST OF POTENTIALLY AFFECTED SPECIES**

Species	Status Federal/ State/ CNPS	Suitable Habitat	Potential for Project to Effect
<i>Desmocerus californicus dimorphus</i> Valley elderberry longhorn beetle	Critical Habitat		No effect. Critical Habitat does not occur near the project site.
<i>Lepidurus packardii</i> Vernal pool tadpole shrimp	Critical Habitat		May effect. Critical Habitat unit occurs within project site.
<i>Oncorhynchus mykiss</i> Central Valley steelhead	Critical Habitat		No effect. Critical Habitat does not occur near the project site.
<i>Orcuttia tenuis</i> Slender Orcutt grass	Critical Habitat		May effect. Critical Habitat unit occurs within project site.
<i>Orcuttia viscida</i> Sacramento Orcutt grass	Critical Habitat		May effect. Critical Habitat unit occurs within project site.
STATE/LOCAL PROTECTED SPECIES			
Amphibians			
<i>Spea hammondi</i> Western spadefoot	--/CSC/--	Occurs seasonally in grasslands, prairies, chaparral, and woodlands, in and around wet sites. Breeds in shallow, temporary pools formed by winter rains. Takes refuge in burrows.	May effect. Suitable habitat is present in the project site and the species has been recorded from several vernal pools within the project site.
Reptiles			
<i>Actinemys marmorata marmorata</i> Western pond turtle	--/CSC/--	Ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Requires basking sites and suitable upland habitat for egg-laying. Nest sites most often characterized as having gentle slopes (<15%) with little vegetation or sandy banks.	May effect. Suitable habitat is present in the project site and the species has been recorded within the project site.
Birds			
<i>Agelaius tricolor</i> Tricolored blackbird	--/CSC/--	Nests in colonies within vicinity of fresh water/ marshy areas. Colonies prefer heavy growths of cattails and tules.	May effect. Suitable nesting habitat is present within the project site. The species has been observed south of Mather Lake and along the southeastern border of the project site.
<i>Asio flammeus</i> Short-eared owl	--/CSC/--	Require open country that supports concentrations of rodents and herbaceous cover sufficient to conceal their ground nests from predators. Suitable habitats may include salt- and freshwater marshes, irrigated alfalfa or grain fields, and ungrazed grasslands and old pastures.	May effect. Suitable nesting habitat is present within the project site, and has been documented within the project site.
<i>Athene cunicularia</i> Western burrowing owl	--/CSC/--	Found in open grasslands with low vegetation, golf courses, and disturbed/ruderal habitat in urban areas.	May effect. Suitable nesting habitat is present within the project site, and burrowing owls are known to nest throughout the project site.
<i>Buteo swainsoni</i> Swainson's hawk	--/CT/--	Forages in open and agricultural fields and nests in mature trees usually in riparian corridors.	May effect. Suitable nesting habitat is present within the project site, although no known nesting occurrences have been recorded within the project site. The species has been observed foraging over grasslands within the project site.

**TABLE 3.5-2
LIST OF POTENTIALLY AFFECTED SPECIES**

Species	Status Federal/ State/ CNPS	Suitable Habitat	Potential for Project to Effect
<i>Circus cyaneus</i> Northern harrier	--/CSC/--	Forages in grasslands, freshwater marsh; nests in agricultural fields and other open habitat.	May effect. Suitable nesting habitat is present within the project site, although no known nesting occurrences have been recorded within the project site. The species has been observed foraging and perching throughout the project site.
<i>Elanus leucurus</i> White-tailed kite	--/CFP/--	Forages in open grasslands and agricultural fields and marshes. Nests in scattered mature trees within foraging habitat.	May effect. Suitable nesting habitat is present within the project site, and the species has been recorded nesting at Mather Lake. The species has been observed foraging throughout the project site.
<i>Lanius ludovicianus</i> Loggerhead shrike	--/CSC/--	Breed mainly in shrublands or open woodlands with a fair amount of grass cover and areas of bare ground. Require tall shrubs, trees, fences or power lines for hunting perches; open areas of short grasses, forbs, or bare ground for hunting; and large shrubs or trees for nest placement.	May effect. Suitable nesting and foraging habitat within project site. The species has been observed foraging and perching throughout the project site.
<i>Riparia riparia</i> Bank swallow	--/ST/--	Banks of rivers, creeks, lakes, and seashores; nests in excavated dirt tunnels near the top of steep banks.	No effect. No suitable nesting habitat within the project site.
Mammals			
<i>Taxidea taxus</i> American badger	--/CSC/--	Found in dry, open grasslands, fields, and pastures.	May effect. Suitable habitat is present within the project site. Although this species has not been observed within the project site, several dens have been documented in the banks of drainage channels in the project site, one south of Independence at Mather and two east of Eagles Nest Road.
Plants			
<i>Gratiola heterosepala</i> Boggs Lake hedge-hyssop	--/CE/1B.2	Annual herb found along the margins of marshes and swamps and in vernal pools with clay soil. Blooms April-August. Elevation: 30 to 7,800 ft.	May effect. Suitable habitat is present within the project site, and the species has been recorded from several vernal pools within the project site. This species has not been observed with the project site since 2000.
<i>Juncus leiospermus</i> var. <i>ahartii</i> Ahart's dwarf rush	--/--/1B.2	Annual herb found along vernal pool margins and vernal swales. Blooms March-May. Elevation: 100 to 750 ft.	May effect. Suitable habitat is present within the project site, and the species has been recorded from several vernal pools within the project site.
<i>Legenere limosa</i> Legenere	--/--/1B.1	Annual herb found in vernal pools. Blooms April-June. Elevation: 0 to 2,900 ft.	May effect. Suitable habitat is present within the project site, and the species has been recorded from several vernal pools within the project site
<i>Sagittaria sanfordii</i> Sanford's arrowhead	--/--/1B.2	Perennial, rhizomatous, emergent herb found in marshes, swamps, and assorted shallow freshwater habitats. Blooms: May-October. Elevation: 0 to 2,000 ft.	May effect. Suitable habitat is present within the project site, and this species has been observed growing along a perennially wet drainage within the project site.

**TABLE 3.5-2
LIST OF POTENTIALLY AFFECTED SPECIES**

Species	Status Federal/ State/ CNPS	Suitable Habitat	Potential for Project to Effect
Natural Communities			
Northern Hardpan Vernal Pool	Natural Community		May effect. Natural community occurs within project site.
STATUS CODES:			
Federal FE = Endangered FT = Threatened FC = Candidate BEPA = Bald Eagle Protection Act		California Native Plant Society List 1B = Plants rare, threatened, or endangered in California and elsewhere List 2 = Plants rare, threatened, or endangered in California, but more common elsewhere List 3 = Plants about which we need more information--a review list List 4 = Plants of limited distribution--a watch list	
State CE = Endangered CT = Threatened CR = Rare CFP = Fully Protected CSC = (CA) Department of Fish and Game Special Concern species		0.1 = Seriously endangered in California 0.2 = Fairly endangered in California 0.3 = Not very endangered in California	
SOURCE: CDFG, 2012, USFWS, 2012b			

Federally-Listed Species

Federally-listed species are plants and animals that are legally protected under ESA (see Section 3.5.2.1 below) and include the following:

- Plants or animals listed or proposed for listing as threatened or endangered under ESA (50 Code of Federal Regulations [CFR] § 17.12 [listed plants], § 17.11 [listed animals] and various notices in the Federal Register [FR; proposed species]).
- Plants or animals that are candidates for possible future listing as threatened or endangered under ESA (61 FR 40, February 28, 1996).

Based on a review of special-status fish, wildlife and plant species in the Carmichael and Buffalo Creek 7.5-minute quadrangles (USFWS, 2012b), a total of six federally listed and protected species have the potential to occur within the project region. Of these, two are known to occur within the project site (vernal pool fairy shrimp and vernal pool tadpole shrimp). Federally listed and protected species that may be affected by the proposed alternatives include:

Listed Species

- vernal pool fairy shrimp (*Branchinecta lynchi*), Threatened
- valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), Threatened
- vernal pool tadpole shrimp (*Lepidurus packardii*), Endangered
- slender Orcutt grass (*Orcuttia tenuis*), Threatened
- Sacramento Orcutt grass (*Orcuttia viscida*), Endangered

Protected Species

- Golden eagle (*Aquila chrysaetos*), Protected under the Bald Eagle Protection Act

Vernal Pool Fairy Shrimp

Vernal pool fairy shrimp are small, aquatic crustaceans. They feed on algae, bacteria, protozoa, rotifers, and bits of detritus (USFWS, 2010a). Vernal pool fairy shrimp are found in a variety of vernal pool habitats, ranging from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. Although the species has been collected from large vernal pools, it tends to occur in smaller pools. It is most frequently found in pools measuring less than 0.5 acre. These types of pools are most commonly in grass or mud bottomed swales, or basalt flow depression pools in unplowed grasslands (USFWS, 2010a).

The species is known to occupy a wide range of vernal pool types, thus its historic distribution likely coincided with the historic distribution of Central Valley, southern California, and southern Oregon vernal pools. In California, current known populations extend from Shasta County through most of the Central Valley to Tulare County, and in coastal valleys from Solano County to San Luis Obispo County. A few additional isolated populations exist in southern California. Although vernal pool fairy shrimp are distributed more widely than other listed vernal pool species, they are generally uncommon throughout their range and are rarely abundant where they are found (USFWS, 2005).

Vernal pool fairy shrimp have been recorded from several vernal pools within the project site.

Vernal Pool Tadpole Shrimp

Vernal pool tadpole shrimp are small, aquatic crustaceans, and can be identified by the large, shield-like carapace that covers the anterior half of their bodies. They feed on living organisms such as fairy shrimp and organic detritus (USFWS, 2010a). Compared to other vernal pool crustaceans the vernal pool tadpole shrimp has a long life span, maturing at a minimum of 25 days and taking an average of 54 days to reproduce. Vernal pool tadpole shrimp are found in a variety of vernal pool types, ranging from clear to highly turbid water, temperatures from 50 to 84 degrees Fahrenheit, and sizes from small to very large (USFWS, 2010a). They have been found in a variety of geologic formations and soil types; however, the majority have been found on High Terrace landforms and in Redding and Corning soils (USFWS, 2005).

This species probably historically occurred wherever appropriate vernal pool habitat existed throughout the Central Valley and Central Coast regions (USFWS, 2005). Currently, this species is known to occur within the Central Valley from east of Redding in Shasta County to Merced County, with isolated occurrences in Fresno, Kings, and Tulare Counties. In the Central Coast region they are known from Alameda County and San Francisco National Wildlife Refuge (USFWS, 2005). There are several occurrences recorded in the CNDDDB scattered through the Central Valley from Shasta to northwestern Tulare County (CDFG, 2010).

Vernal pool habitat is abundant within the project site, and vernal pool fairy shrimp have been recorded from several vernal pools within the project site.

Slender Orcutt Grass

Slender Orcutt grass is a member of the Orcuttieae tribe in the Poaceae family. It is a small annual grass that grows as single stems or in small tufts and blooms from May to September. As with all members of the tribe Orcuttieae, slender Orcutt grass seeds can remain dormant for at least three to four years and germinate underwater after they have been immersed for prolonged periods. In general, years of above-average rainfall promote larger populations of Orcuttieae but population sizes vary by species and by pool. Slender Orcutt grass generally occurs in vernal pools between 35 and 1,760 meters in elevation. Large pools that retain water until May or June create optimal conditions for *Orcuttia*, and within such pools Orcutt grass species tend to occur in patches that are devoid of other plant species. The range of this species is primarily limited to the inner north Coast Ranges, the Cascade Range foothills, and the Modoc Plateau, but it is also known to occur in Sacramento County (Hickman, 1993; California Native Plant Society [CNPS], 2010).

Vernal pools on the project site may provide suitable habitat for slender Orcutt grass; however, there are no known populations of this species within the site. The nearest recorded occurrence is less than one mile east of the project site.

Sacramento Orcutt Grass

Sacramento Orcutt grass is another member of the Orcuttieae tribe. It is a small sticky and strongly aromatic annual herb in the grass family that typically flowers from April through June. This species is endemic to vernal pools between 30 and 100 meters in elevation. The life history of this species is nearly identical to that of other species in the tribe Orcuttieae and is summarized under the description of slender Orcutt grass, above. The most significant difference is that this

species is less likely to germinate in years of below-normal precipitation than other members of its tribe. The range of this species is limited to Sacramento County (Hickman, 1993; CNPS, 2010).

Vernal pools on the project site may provide suitable habitat for Sacramento Orcutt grass; however, there are no known populations of this species within the project site. The nearest recorded occurrence is less than one mile east of the project site.

Valley Elderberry Longhorn Beetle

The valley elderberry longhorn beetle is completely dependent on its host plant, elderberry (*Sambucus* spp.), which is a common component of the remaining riparian forests and adjacent upland habitats of California's Central Valley. The beetle, a wood borer, is rarely observed. Frequently, the only exterior evidence of the elderberry's use by the beetle is an exit hole created by the larva just prior to the pupal stage. The life cycle takes one or two years to complete. The animal spends most of its life in the larval stage, living within the stems of an elderberry plant. Adult emergence is from late March through June, about the same time the elderberry produces flowers. The adult stage is short-lived (USFWS, 1999).

Records for this species are restricted to small, scatted populations along the Sacramento, American, San Joaquin, Kings, Kaweah, and Tule Rivers and their tributaries. However, the species has the potential to occupy shrubs below 3,000 feet in elevation within the Central Valley and Sierra Nevada foothills. For this reason, elderberry shrubs of sufficient size (measuring at least one inch in diameter at ground level) are considered suitable habitat for this species.

Elderberry shrubs are present on the project site which provide suitable habitat for valley elderberry longhorn beetle; however, there are no known occurrences of this species within the project site. The nearest recorded occurrence is 1.5 miles north of the project site.

Golden Eagle

The golden eagle is an uncommon, permanent resident and migrant throughout California (except in the center of the Central Valley where it is a winter visitor). Golden eagles nest in open areas on cliffs and in large trees, often constructing multiple nests in one breeding territory (Zeiner et al., 1988–1990). They forage in open terrain such as grasslands, deserts, savannahs, and early successional stages of forest and shrub habitats (Zeiner et al., 1988–1990).

The grassland habitat within the project site could provide potential winter foraging habitat; however, suitable nesting habitat is absent. A wintering golden eagle was observed foraging adjacent to the project site.

State and Local Special-Status Species

State and local special-status species are plants and animals that are legally protected under the California Endangered Species Act (CESA) or other state or local regulations and species that are considered sufficiently rare by the scientific community to qualify for such listing. These species include the following categories:

- Plants or animals listed or proposed for listing by the State of California as threatened or endangered under the CESA (see Section 3.5.2.2 below) (14 California Code of Regulations [CCR] 670.5);
- Plants listed as rare or endangered under the California Native Plant Protection Act (see Section 3.5.2.3 below) (California Fish and Game Code, Section 1900 et seq.);
- Plants that meet the definitions of rare and endangered under the California Environmental Quality Act (CEQA). CEQA Section 15380 provides that a plant or animal species may be treated as “rare or endangered” even if not on one of the official lists (State CEQA Guidelines, Section 15380);
- Plants considered under the California Native Plant Society (CNPS) to be “rare, threatened or endangered in California” (Lists 1A, 1B, and 2 in CNPS, 2010) (see Section 3.5.2.3 below);
- Animal species of special concern to CDFG (see Section 3.5.2.2 below); and
- Animals fully protected in California (California Fish and Game Code, Sections 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]) (see Section 3.5.2.2 below).

Based upon the CNDDDB database search for special-status species as well as an analysis of habitat suitability within the project site, ESA identified 14 state and local special-status species that have the potential to occur within and/or adjacent to the project site. These species include western spadefoot, western pond turtle, tricolored blackbird, short-eared owl, western burrowing owl, Swainson’s hawk, northern harrier, white-tailed kite, loggerhead shrike, American badger, Bogg’s Lake hedge-hyssop, Ahart’s dwarf rush, legenere, and Sanford’s arrowhead. A description of suitable habitat and likelihood for development on the project site to affect these species is included in **Table 3.5-2**.

Critical Habitat

The federal Endangered Species Act (ESA) (see Section 3.5.2.1 below) requires the federal government to designate critical habitat for any species it lists under the ESA. Critical habitat is defined as: (1) specific areas within the geographical area occupied by the species at the time of listing, if they contain physical or biological features essential to conservation, and those features may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by the species if the agency determines that the area itself is essential for conservation. Within the project site, critical habitat has been identified for vernal pool fairy shrimp, vernal pool tadpole shrimp, slender Orcutt grass, and Sacramento Orcutt grass. This includes the Mather Unit for vernal pool tadpole shrimp and fairy shrimp, and the Southeast Sacramento Valley Unit for slender Orcutt grass and Sacramento Orcutt grass. The Mather Unit contains all four Primary Constituent Elements (PCE) identified in the final rule designating critical habitat for vernal pool tadpole shrimp and fairy shrimp while the Southeast Sacramento Valley Unit contains both of the PCE for slender Orcutt grass and Sacramento Orcutt grass (FR 71:7118-7316). The USFWS defines primary constituent elements are those physical and biological features of a landscape that a species needs to survive and reproduce. When designating critical habitat, the USFWS identifies special management considerations as threats or impacts important to management and recovery. The special management considerations identified for these units include: habitat conversion for urban or agricultural uses, changes in

hydrology, grazing, off-road vehicle use, and invasive species. The amount of critical habitat within the project site is summarized in **Table 3.5-3** and **Figure 3.5-2**.

**TABLE 3.5-3
CRITICAL HABITAT WITHIN THE MATHER CORE RECOVERY AREA**

Critical Habitat Unit / Species	Acres within Project Site	Acres of Suitable Habitat
Mather Critical Habitat Unit / Vernal Pool Tadpole Shrimp and Vernal Pool Fairy Shrimp	1,362	55.1
Southeast Sacramento Valley Critical Habitat Unit / Slender Orcutt Grass and Sacramento Orcutt Grass	72	4.3

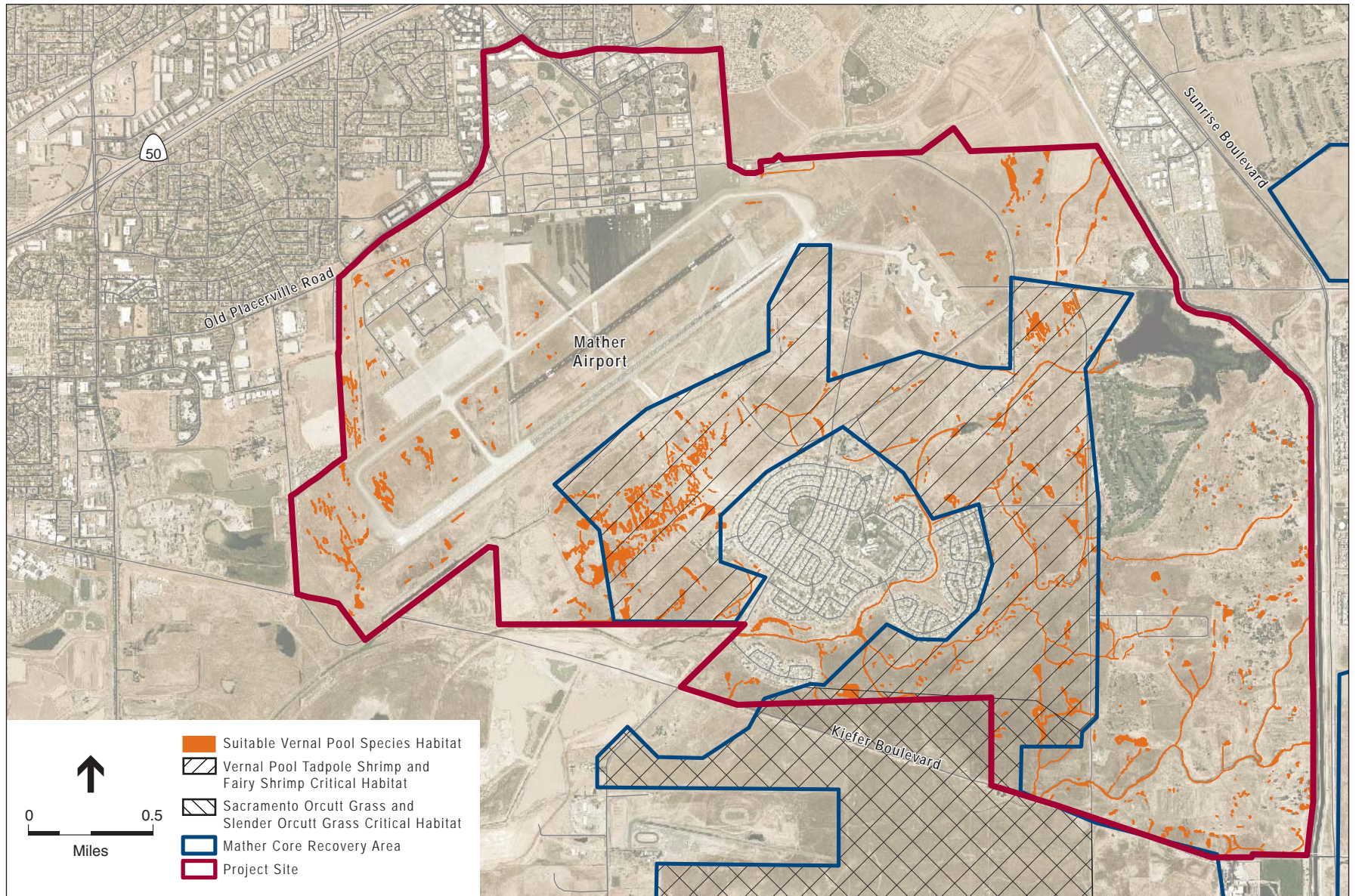
SOURCE: USFWS, 2006; Sacramento County, 2011.

Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon

The *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (USFWS, 2005) was released by USFWS on December 15, 2005. This plan features 33 species of plants and animals that occur exclusively or primarily within vernal pool ecosystems, including the federally listed vernal pool fairy shrimp, tadpole shrimp and orcutt grasses. The plan outlines recovery priorities and provides goals, objectives, strategies, and criteria for recovery. One of the overall objectives of the recovery plan is to promote natural ecosystem processes and functions by protecting and conserving intact vernal pools and vernal pool complexes. Habitat protection under the recovery plan includes the protection of the topographic, geographic, and edaphic features that support hydrologically interconnected systems of vernal pools, swales, and other seasonal wetlands within an upland matrix that together form hydrologically and ecologically functional vernal pool complexes.

As shown in **Figure 3.5-2**, suitable habitat for vernal pool species is abundant within the project site. Habitat quality ranges from highly suitable for vernal pool species between Mather Airport and Independence at Mather to marginally suitable. For this evaluation, all seasonal wetlands were considered suitable habitat for vernal pool species, although it is recognized that some seasonal wetlands lack habitat elements necessary for vernal pool species (such as pool depth and duration). In addition, Morrison Creek and its tributaries were considered as suitable habitat due to their function as potential corridors for species dispersal.

The project site is within the Mather Core Recovery Area identified in the recovery plan. Core areas are specific areas USFWS has deemed necessary for preservation to recover listed vernal pool species. This is based on the premise that these areas represent viable populations or will contribute to habitat connectivity and therefore increase opportunities for dispersal and genetic exchange. Recovery efforts are to be focused on the core areas within each vernal pool region. Core areas are further ranked as Zone 1, 2, or 3 in order of their overall priority for recovery. The Mather Core Area is ranked as Zone 1, meaning that it has the highest priority for recovery. Protection of Zone 1 core areas has been designated as a Priority 1 action by USFWS biologists because they believe that within each Zone 1 core area, protection of species occurrences and suitable vernal pool habitat is necessary to prevent extinction or irreversible decline of at least one species covered in the recovery plan.



SOURCE: NAIP, 2006; Sacramento County, 2011; and ESA, 2012

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Figure 3.5-2
Suitable Vernal Pool Habitat and Critical Habitat

Core areas were identified as Zone 1 in cases where they were occupied by very narrowly endemic species (i.e., few populations and narrow or disjunct distributions that are known to be, or are likely to be, genetically or ecologically distinct) or where the core area supported a high diversity of the species covered by the plan. The Mather Core Area is listed as a Priority 1 area because of the presence of Sacramento Orcutt grass and a “high number of rare species in the area.” USFWS’s recovery plan lists Sacramento Orcutt grass, slender Orcutt grass, vernal pool fairy shrimp, and vernal pool tadpole shrimp as listed species in the area. Specifically, the plan calls for the protection of 95 percent of suitable habitat for vernal pool tadpole shrimp, slender Orcutt grass, and Sacramento Orcutt grass, and protecting 85 percent of suitable habitat for vernal pool fairy shrimp. Habitat to be protected includes both occupied and unoccupied suitable habitat that serves as corridors for dispersal, opportunities for metapopulation dynamics, reintroduction/introduction sites, and protection of undiscovered populations. Thus, although not an adopted policy or regulation, the USFWS has stressed these targets for projects in the region to help ensure species recovery.

Within the project site, the Mather Core Area contains approximately 55.1 acres of suitable habitat for vernal pool tadpole shrimp and vernal pool fairy shrimp. Within the project site, the Mather Core Area contains approximately 4.3 acres of suitable habitat for slender Orcutt grass and Sacramento Orcutt grass (**Figure 3.5-2**). The recovery plan has goals of protecting approximately 46.8 acres (85 percent) of vernal pool fairy shrimp habitat, 52.3 acres (95 percent) of vernal pool tadpole shrimp and 4.1 acres (95 percent) of slender Orcutt grass and Sacramento Orcutt grass habitat within the project site.

Vernal Pool Fairy Shrimp Critical Habitat. Vernal pool fairy shrimp was listed as threatened on September 19, 1994 (59 FR 48136). Critical habitat for the vernal pool fairy shrimp was originally designated in a final rule published in 68 FR 46683 on August 6, 2003. A revised final rule for critical habitat, with a re-evaluation of non-economic exclusions, was published in 70 FR 11140 on March 8, 2005. Economic exclusions from the 2003 final rule were evaluated in 70 FR 46923, published on August 11, 2005. Administrative revisions with species-by-unit designations were published in 71 FR 7117 on February 10, 2006, providing 35 critical habitat units for the vernal pool fairy shrimp totaling 597,821 acres. On May 31, 2007, the USFWS published a clarification of the economic and non-economic exclusions for the 2005 final rule designating critical habitat for four vernal pool crustaceans and eleven vernal pool plants in California and southern Oregon (72 FR 30269). The project site is located within designated critical habitat for vernal pool fairy shrimp. The conservation goals for the Mather Core Area set forth in the Recovery Plan include protecting 85 percent of suitable habitat for vernal pool fairy shrimp.

Vernal Pool Tadpole Shrimp Critical Habitat. Vernal pool tadpole shrimp was listed as endangered on September 19, 1994 (59 FR 48136). Critical habitat for the vernal pool tadpole shrimp was proposed on September 24, 2002 (67 FR 60033). The final rule to designate critical habitat for the vernal pool tadpole shrimp was designated in a final rule published in 68 FR 46683 on August 6, 2003. A revised final rule for critical habitat, with a re-evaluation of non-economic exclusions, was published in 70 FR 11140 on March 8, 2005. Economic exclusions from the 2003 final rule were evaluated in 70 FR 46923, published on August 11, 2005. Administrative revisions with species-by-unit designations were published in 71 FR 7117 on February 10, 2006, providing 18 critical habitat

units for the vernal pool fairy shrimp totaling 228,785 acres. On May 31, 2007, the USFWS published a clarification of the economic and non-economic exclusions for the 2005 final rule designating critical habitat for four vernal pool crustaceans and eleven vernal pool plants in California and southern Oregon (72 FR 30269). The project site is located within designated critical habitat for vernal pool tadpole shrimp. The conservation goals for the Mather Core Area set forth in the Recovery Plan include protecting 95 percent of suitable habitat for vernal pool tadpole shrimp.

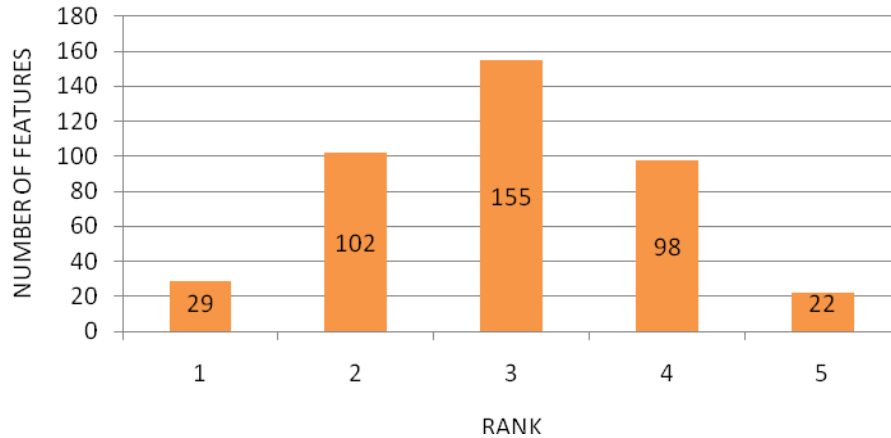
Slender Orcutt Grass Critical Habitat. Slender Orcutt grass was listed as threatened on March 26, 1997 (62 FR 14338). Critical habitat for slender Orcutt grass was originally designated in a final rule published in 68 FR 46683 on August 6, 2003. Economic exclusions from the 2003 final rule were evaluated in 70 FR 46923, published on August 11, 2005. Administrative revisions with species-by-unit designations were published in 71 FR 7117 on February 10, 2006, providing six critical habitat units totaling 94,213 acres. The project site is located within designated critical habitat for slender Orcutt grass. The conservation goals for the Mather Core Area set forth in the Recovery Plan include protecting 95 percent of suitable habitat for slender Orcutt grass.

Sacramento Orcutt Grass Critical Habitat. Sacramento Orcutt grass was listed as endangered on March 26, 1997 (62 FR 14338). Critical habitat for slender Orcutt grass was originally designated in a final rule published in 68 FR 46683 on August 6, 2003. Economic exclusions from the 2003 final rule were evaluated in 70 FR 46923; published on August 11, 2005. Administrative revisions with species-by-unit designations were published in 71 FR 7117 on February 10, 2006, providing three critical habitat units totaling 33,273 acres. The project site is located within designated critical habitat for Sacramento Orcutt grass. The conservation goals for the Mather Core Area set forth in the Recovery Plan include protecting 95 percent of suitable habitat for Sacramento Orcutt grass.

Suitable Habitat for Vernal Pool Species

Sacramento County conducted a natural resource assessment which included an evaluation of the “vernal features” on the project site, including vernal pools, vernal swales, and other features considered suitable habitat for vernal pool species, to determine their relative importance as habitat for special-status species (WRA, 2004c). The study considered a variety of criteria to weigh the relative importance of each feature, including documented presence of special-status species, potential to support additional rare wildlife species, native plant species diversity, extent of existing habitat disturbance, character of adjacent uplands, and hydrologic and topographic connectivity to other wetland features. Each feature was then ranked on a scale of 1 to 5, with 5 representing the highest relative score for vernal pool ecological function. The results of this analysis are presented in **Figure 3.5-3** and **Figure 3.5-4**.

As shown in **Figure 3.5.4**, most of the highest ranking vernal features are located south of Mather Airport and west of the Independence at Mather residential development. Several high ranking features also occur immediately east and north of Independence at Mather and near Eagles Nest Road in the southern portion of the project site. Features near the east boundary of the project site tend to have lower rankings for relative ecological function, likely due to past land disturbances, such as the construction of the Folsom South Canal.



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Figure 3.5-3
Distribution of Vernal Features by Rank

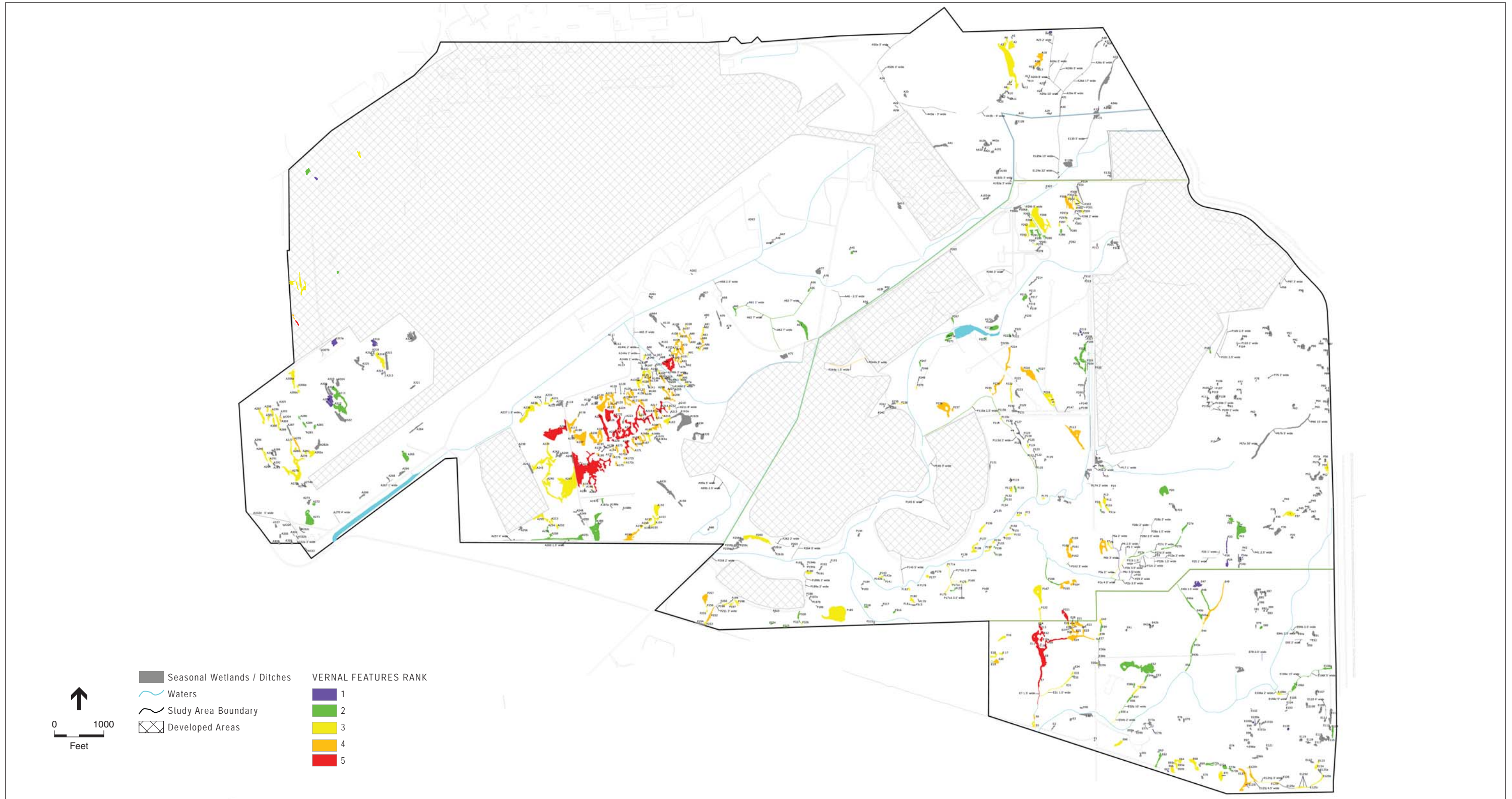
3.5.2 Regulatory Setting

The project site falls within the general geographic range of a number of “special-status” plants and animals. In this assessment, special-status species are those species that are federally listed or proposed as threatened or endangered. Special-status species also includes those species considered by State or local resource agencies or conservation groups, such as CDFG and CNPS, as being rare or in decline. An endangered plant or wildlife species is one that is considered in danger of becoming extinct throughout all or a significant portion of its range. A threatened species is one that is likely to become endangered within the foreseeable future. Species have also been listed by the State of California as threatened, endangered or fully protected (from take), while CDFG has identified species of special concern (those species that may be rare or in decline). Finally, CNPS also maintains a list of plant species that may be rare, regionally unique, or in decline.

3.5.2.1 Federal

Federal Endangered Species Act

The ESA grants protection over species that are formally listed as threatened endangered, or proposed for listing. The primary protective requirement in the case of projects requiring federal permits, authorizations, or funding, is Section 7 of ESA, which requires federal lead agencies to consult (or “confer” in the case of proposed species or proposed critical habitat) with the USFWS (and National Oceanic Atmospheric Administration [NOAA] Fisheries where marine species may be affected) to ensure that their actions do not jeopardize the continued existence of federally listed species. In addition to Section 7 requirements, Section 9 of the ESA protects listed wildlife species from “take”. Take is broadly defined as those activities that “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect [a protected species], or attempt to engage in any such conduct.” USFWS regulations at 50 CFR §17.3 provide further definitions of harass and harm. Harass is defined as “an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering” (50 CFR §17.3).



SOURCE: WRA, 2004c; and ESA, 2012

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Figure 3.5-4
Vernal Features Rankings

Harm is defined as “an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering” (50 CFR §17.3). An activity can be in violation of take prohibitions even if the activity is unintentional or accidental. Significant modification or degradation of occupied habitat for listed species, or activities that prevent or significantly impair essential behavioral patterns, including breeding, feeding, or sheltering, are also considered “take” under the ESA. Federal agencies may receive authorization for the incidental take of listed species under Section 7 through the issuance of a Biological Opinion from the USFWS and/or NOAA Fisheries. State, local, and private entities may receive incidental take authorization under an approved Habitat Conservation Plan (HCP). For the Applicant’s Preferred Alternative, the U.S. Army Corps of Engineers (USACE) is the lead federal agency responsible for consultation with the USFWS under Section 7 of ESA.

The USFWS issued a final Biological Opinion for the disposal of the former Mather Air Force on January 24th, 2012. The USFWS concluded that that disposal of the former Mather Air Force Base is not likely to jeopardize the continued existence of vernal pool fairy shrimp, vernal pool tadpole shrimp, Sacramento Orcutt grass, slender Orcutt grass, and is not likely to destroy or adversely modify designated vernal pool fairy shrimp critical habitat, and vernal pool tadpole shrimp critical habitat.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 makes it unlawful to take or attempt to take any migratory bird, any part, nest, or egg of any such bird except under the terms of a permit issued by the U. S. Department of the Interior. In total, 836 bird species are protected by the MBTA, 58 of which are currently legally hunted as game birds. A migratory bird is any species or family of birds that live, reproduce or migrate within or across international borders at some point during their annual life cycle.

The Bald Eagle Protection Act

The Bald Eagle Protection Act (16 U.S.C. 668-668c) prohibits anyone, without a permit issued by the Secretary of the Interior, from “taking” bald and golden eagles, including their parts, nests, or eggs. The Act defines “take” as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.” In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death or nest abandonment.

Executive Order 11312: Invasive Species

Executive Order 11312 directs all federal agencies to prevent and control introductions of invasive nonnative species in a cost-effective and environmentally sound manner to minimize their economic, ecological, and human health impacts. Executive Order 11312 established a national Invasive Species Council made up of federal agencies and departments and a supporting Invasive Species Advisory Committee composed of state, local and private entities. The Invasive Species Council

and Advisory Committee oversee and facilitate implementation of the Executive Order, including preparation of a National Invasive Species Management Plan.

Executive Order 11990: Protection of Wetlands

Executive Order 11990 established the protection of wetlands and riparian systems as the official policy of the federal government. It requires all federal agencies to consider wetland protection as an important part of their policies and take action to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands.

3.5.2.2 State

California Endangered Species Act

Pursuant to CESA and Section 2081 of the California Fish and Game Code, a permit from the CDFG is required for a project that could result in the take of a state-listed threatened or endangered species (i.e., species listed under CESA). Under CESA, the definition of “take” includes an activity that would directly or indirectly kill an individual of a species, but the state definition does not include “harm” or “harass,” as the federal definition does. As a result, the threshold for take under the CESA is typically higher than that under the ESA. Under CESA, CDFG maintains a list of threatened species and endangered species (California Fish and Game Code 2070). The CDFG also maintains two additional lists: (1) a list of candidate species that are species CDFG has formally noticed as being under review for addition to either the list of endangered species or the list of threatened species; and (2) a list of “species of special concern;” these lists serve as “watch lists.”

California Fish and Game Code

The California Fish and Game Code protects a variety of species from take. Certain species are considered *fully protected*, meaning that the code explicitly prohibits all take of individuals of these species except for take permitted for scientific research. It also is possible for a species to be protected under the California Fish and Game Code, but not fully protected.

California Native Plant Protection Act

The California Native Plant Protection Act of 1977 (Fish and Game Code Sections 1900–1913) is intended to preserve, protect, and enhance endangered or rare native plants in California and gives the CDFG authority to designate state endangered, threatened, and rare plants and provides specific protection measures for identified populations.

Vascular plants listed as rare or endangered by CNPS (2009), but which have no designated status or protection under federal or state endangered species legislation, are defined as follows:

- **List 1A:** Plants Believed Extinct.
- **List 1B:** Plants Rare, Threatened, or Endangered in California and elsewhere.
- **List 2:** Plants Rare, Threatened, or Endangered in California, but more numerous elsewhere.
- **List 3:** Plants About Which More Information is Needed - A Review List.
- **List 4:** Plants of Limited Distribution - A Watch List.

In general, plants appearing on CNPS List 1 or 2 are considered to be rare by local standards and therefore are addressed within the document.

3.5.2.3 Local

Sacramento County Swainson's Hawk Ordinance

Sacramento County's Swainson's Hawk Ordinance establishes requirements and guidelines for the mitigation of Swainson's hawk foraging habitat within the unincorporated areas of the County. This ordinance applies to projects five acres or greater that are not within an approved Habitat Conservation Plan area and have been determined to result in a significant impact or significant cumulative impact to Swainson's hawk foraging habitat.

Sacramento County Tree Ordinance

Sacramento County's Tree Ordinance requires project proponents to obtain a permit from the Director of Public Works if the project will trench, grade, or place fill within the dripline of any oak or landmark tree, or to remove any tree in a designated urban area. The ordinance is designed to protect living native oak trees that have at least one trunk six inches or more dbh (defined as 4.5 feet above ground level), living native oaks with an aggregate diameter of at least 10-inches dbh, and landmark trees.

Proposed South Sacramento Habitat Conservation Plan (SSHCP)

The project site is located within the proposed SSHCP area. The SSHCP is intended to provide a regional approach to issues related to urban development, habitat conservation, agricultural production, and open space planning. The process for developing the SSHCP was initiated in 1995. The SSHCP is not yet scheduled for completion.

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3.6 Aquatic Resources

The assessment of existing conditions and analysis of potential effects is based on the current verified jurisdictional delineation and previous wetland assessments. The general and specific profiles of aquatic resources contained in this section provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Chapter 4.0**. This section focuses upon wetlands and other waters of the U.S. that are regulated under Section 404 of the Clean Water Act.

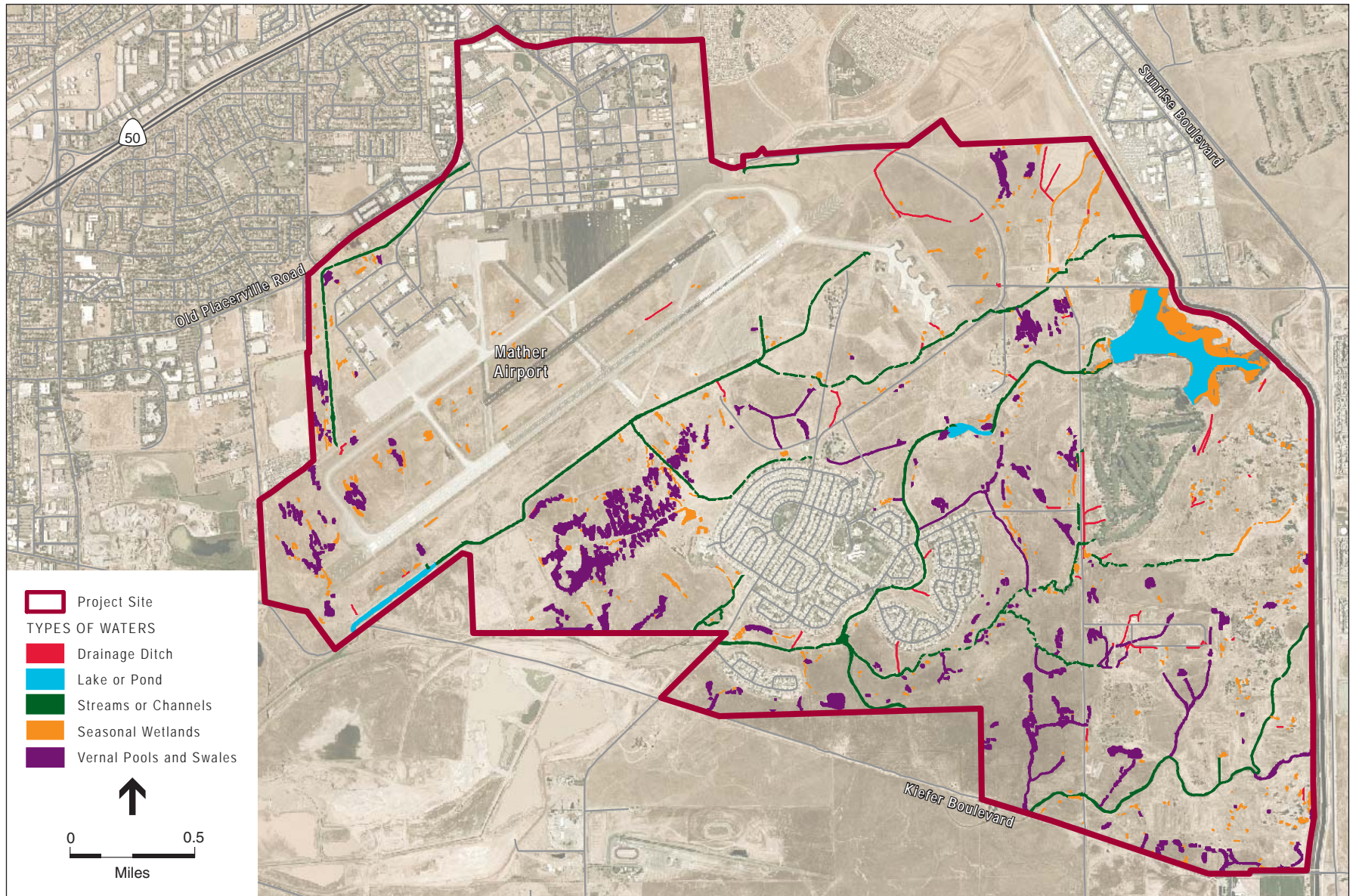
3.6.1 Existing Setting

3.6.1.1 Jurisdictional Delineations

Wetlands and other waters of the U.S. within the project site were formally delineated in accordance with the methodology prescribed in the *U.S. Army Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987). Most of the project site was originally delineated in 2002 as described in the *Delineation of Potential Jurisdictional Wetlands and Waters of the U.S. under Section 404 of the Clean Water Act, Mather Field Study Area* (WRA, 2004a). The U.S. Army Corps of Engineers (USACE) verified this delineation in February 2004. Wetlands in the area of Mather Airport were delineated separately as described in the *Delineation of Potential Jurisdictional Wetlands and Waters of the U.S. under Section 404 of the Clean Water Act, Mather Airport Project Site* (WRA, 2005). USACE verified this delineation in October 2006. Aquatic features on the project site were re-verified by USACE in March 2011 (Sacramento County, 2011).

Of the 893 identified water features, the USACE determined that 117 were not jurisdictional (113 were considered “isolated” and four were considered “roadside ditches”). These 117 non-jurisdictional features are still subject to regulation by the State through the Regional Water Quality Control Board (RWQCB).

A total of 198.5 acres of water features occur within the project site. USACE-verified jurisdictional features include a total of 125.2 acres of wetlands and 73.3 acres of other waters of the U.S. A summary of USACE-verified jurisdictional features and their extent within the project site is presented in **Table 3.6-1**, and includes seasonal wetland, vernal pool, and open water (drainage ditch, lake/pond, and stream channel). The biological elements of these features are described in more detail in **Section 3.5**. **Figure 3.6-1** shows the location of all wetlands and waters of the U.S. within the project site, while **Figure 3.6-2** presents the soil types present.

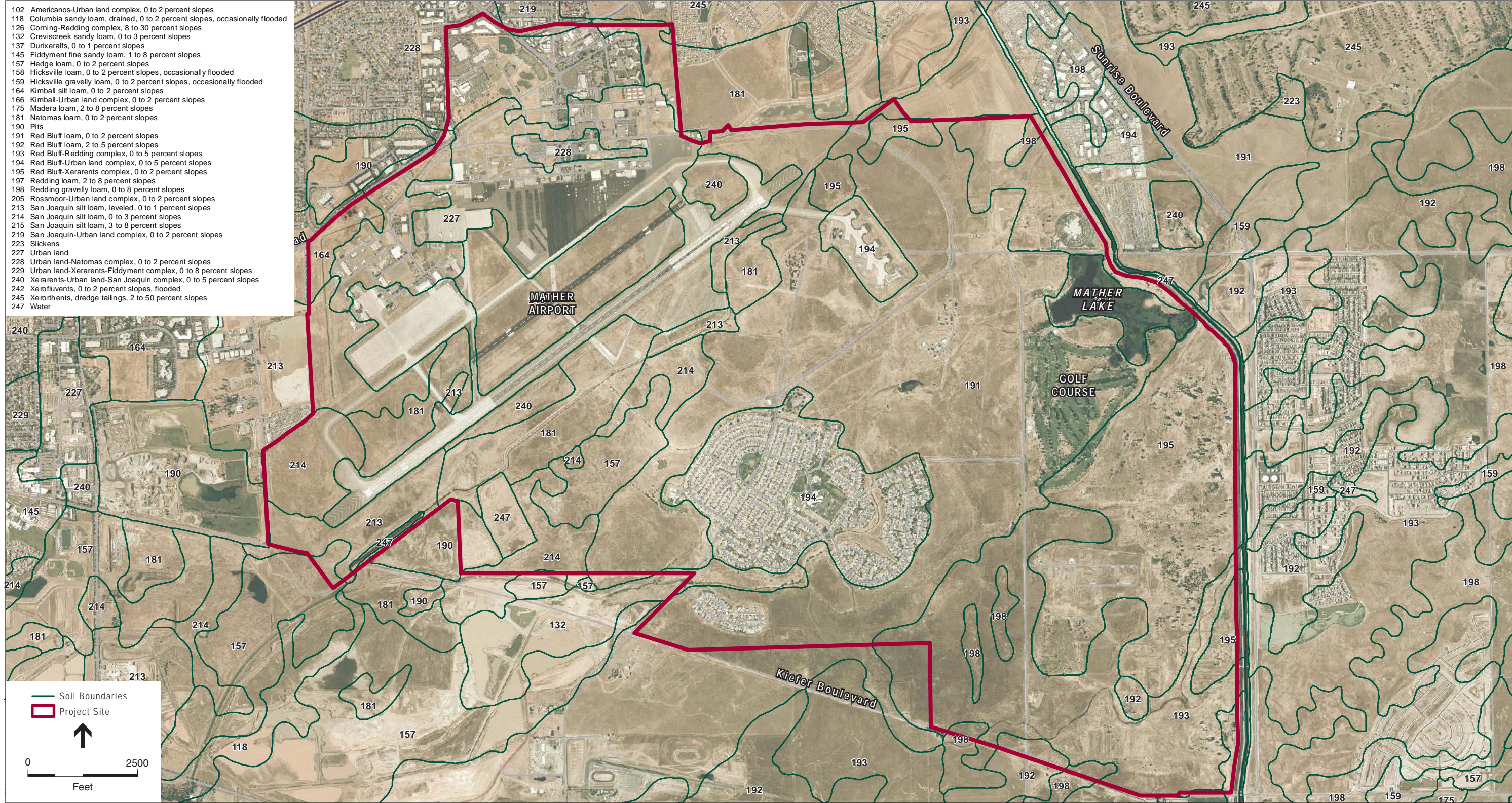


SOURCE: NAIP, 2009; Sacramento County, 2011; and ESA, 2012

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Figure 3.6-1
Waters of the U.S.

- 102 Americanos-Urban land complex, 0 to 2 percent slopes
- 118 Columbia sandy loam, drained, 0 to 2 percent slopes, occasionally flooded
- 126 Corning-Redding complex, 8 to 30 percent slopes
- 132 Creviscreek sandy loam, 0 to 3 percent slopes
- 137 Durixeralfs, 0 to 1 percent slopes
- 145 Fiddyment fine sandy loam, 1 to 8 percent slopes
- 157 Hedge loam, 0 to 2 percent slopes
- 158 Hicksville loam, 0 to 2 percent slopes, occasionally flooded
- 159 Hicksville gravelly loam, 0 to 2 percent slopes, occasionally flooded
- 164 Kimball silt loam, 0 to 2 percent slopes
- 166 Kimball-Urban land complex, 0 to 2 percent slopes
- 175 Madera loam, 2 to 8 percent slopes
- 181 Natomas loam, 0 to 2 percent slopes
- 190 Pits
- 191 Red Bluff loam, 0 to 2 percent slopes
- 192 Red Bluff loam, 2 to 5 percent slopes
- 193 Red Bluff-Redding complex, 0 to 5 percent slopes
- 194 San Bluff-Urban land complex, 0 to 5 percent slopes
- 195 Red Bluff-Xerarents complex, 0 to 2 percent slopes
- 197 Redding loam, 2 to 8 percent slopes
- 198 Redding gravelly loam, 0 to 8 percent slopes
- 205 Rossmoor-Urban land complex, 0 to 2 percent slopes
- 213 San Joaquin silt loam, leveled, 0 to 1 percent slopes
- 214 San Joaquin silt loam, 0 to 3 percent slopes
- 215 San Joaquin silt loam, 3 to 8 percent slopes
- 219 San Joaquin-Urban land complex, 0 to 2 percent slopes
- 223 Slickens
- 227 Urban land
- 228 Urban land-Natomas complex, 0 to 2 percent slopes
- 229 Urban land-Xerarents-Fiddyment complex, 0 to 5 percent slopes
- 240 Xerarents-Urban land-San Joaquin complex, 0 to 5 percent slopes
- 242 Xerofluvents, 0 to 2 percent slopes, flooded
- 245 Xerorthents, dredge tailings, 2 to 50 percent slopes
- 247 Water



SOURCE: NAIP, 2006; and ESA, 2011

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Figure 3.6-2
Soils Types

**TABLE 3.6-1
USACE JURISDICTIONAL FEATURES WITHIN THE
PROJECT SITE**

Type of Jurisdictional Feature	Acres¹
Wetlands	
Seasonal Wetland	52.6
Vernal Pool	72.6
Total area of wetlands:	125.2
Other Waters	
Drainage Ditch	2.5
Lake/Pond	46.3
Stream Channel	24.5
Total area of other waters:	73.3
Total area of jurisdictional features:	198.5

1. All acres approximate.
SOURCE: Sacramento County, 2011.

Wetlands

Seasonal Wetlands

Seasonal wetlands are relatively shallow topographic depressions that pond for a short duration, support a fairly low diversity of plant species, and tend to support species with a high tolerance for disturbance. Seasonal wetlands are freshwater wetlands that support ponded or saturated soil conditions during winter and spring and are dry through the summer and fall. Seasonal wetlands are defined by a hydrologic regime that is dominated by saturation, rather than inundation. Seasonal wetlands inundate for short periods of time following a storm event but the primary hydrologic regime is one of saturation. Vegetation is characterized by species of annual and perennial, native and non-native grasses and forbs that begin their growth as aquatic or semi-aquatic plants, that make a transition to a dry-land environment as the pool dries. Wetland plant species that are either low-growing, tenacious perennials that tolerate disturbance or annuals that tolerate seasonal wetness often colonize seasonal wetlands. Upland grasses and forbs can become established while the features desiccate. Although seasonal wetlands and vernal pools share similar hydrologic characteristics, species composition of seasonal wetlands is typically more ruderal in nature. Therefore, seasonal wetlands are not considered vernal pools, which support a more specialized and less common native flora (WRA, 2004a).

Vernal Pools

Vernal pools are ephemeral wetlands that form in shallow depressions underlain by an impervious or restrictive soil layer near the surface that restricts the percolation of water. At the project site, the vernal pools are underlain by claypans (e.g., Xerarents-Urban land-San Joaquin complex) and hardpans (e.g., Redding gravelly loam) and some soils, such as San Joaquin silt loam, have both claypan and an underlying hardpan (Figure 3.6-2) (WRA, 2004b). They pond during the wet season and become dry in late spring. Vernal pools typically are distinguished by a unique assemblage of species adapted to the extreme conditions created by the cycles of inundation and drying. Vernal pools differ in species composition from seasonal wetlands during the early spring when growing

conditions are appropriate for vernal pool species. Vernal pool habitat typically occurs in defined depressions that sustain ponded conditions for a long duration in the winter and early spring rainy season, but then dry up by early to late May. Typically, these depressions are sustained hydrologically by rainfall and surface runoff as well as shallow subsurface flow.

Other Waters of the U.S.

Open water in the project site occurs within constructed ditches; natural ephemeral or intermittent channels or swales; a reservoir (Mather Lake); and man-made ponds. Although many of the constructed open water features are periodically maintained to increase capacity for water conveyance, some of the more naturalized features still support emergent wetland and marsh species.

Channels within the project site were delineated based on clear evidence of regular sustained flows, which included the presence of a defined bed and bank, scouring and deposition of sands and gravel substrates, and in most features the absence of upland vegetation and topsoil. Field indicators of the ordinary high water mark were used as a basis for defining the landward extent of the channels.

The man-made ponds in the project site sustain ponding for long duration during the growing season, but eventually dry up in middle to late summer in most years. Most of these features were artificially created by previous excavation and berm construction activities. Mather Lake and a small impoundment on Morrison Creek downstream of Mather Lake are permanent features.

3.6.2 Regulatory Setting

3.6.2.1 Federal

Section 404 of the Clean Water Act

The USACE is the agency responsible for regulating the discharge of dredged or fill material into jurisdictional wetlands and other waters of the U.S. under Section 404 of the Clean Water Act. The U.S. Environmental Protection Agency (EPA) has overall responsibility for the Clean Water Act.

Wetlands are ecologically complex habitats that support a variety of plant and animal life. The federal government defines wetlands as “areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support (and do support, under normal circumstances) a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR §328.3(b) and 40 CFR §230.3). Under normal circumstances, the federal definition of wetlands requires evidence of three parameters: wetland hydrology, hydric soils, and hydrophytic vegetation. Examples of jurisdictional wetlands include freshwater marsh, seasonal wetlands, and vernal pools that have a significant nexus to navigable waterways.

“Other waters of the U.S.” refer to aquatic features that are regulated by the Clean Water Act but are not wetlands (33 CFR §328.3). To be considered jurisdictional, these features must exhibit an ordinary high-water mark, and be tributary to or possess a significant nexus to a navigable waterway. Examples of other waters of the U.S. include rivers, creeks, intermittent channels, ponds and lakes.

Section 404 of the Clean Water Act provides the statutory mechanism for the USACE to permit the discharge of dredged or fill material into waters of the United States. Projects that would result in the placement of dredged or fill material into waters of the U.S. require a permit from the USACE. The USACE may either issue individual permits on a case-by-case basis or general permits at a program level. As described previously, for this project, the USACE has determined that issuing permits pursuant to Section 404 would be considered a major federal action under the National Environmental Policy Act, and therefore has prepared this EIS to evaluate the effects of those actions.

Section 404(b)(1) of the Clean Water Act

Under Section 404(b)(1) of the Clean Water Act, the Corps must comply with the guidelines developed by EPA when approving discharges. The Section 404(b)(1) Guidelines contain the substantive criteria for permitting dredged and fill material discharges under the Clean Water Act (40 CFR Part 230). As part of the public review process, the Corps is required to determine whether a project complies with Section 404(b)(1) Guidelines. The Section 404(b)(1) Guidelines prohibit the discharge of dredged or fill materials to waters of the United States if there is a “practicable alternative to the proposed discharge that would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse consequences” (40 CFR §230.10(a)). Practicable alternatives include activities that do not involve a discharge of fill into waters of the United States or involve a discharge at another location(s) in waters of the United States. An alternative is “practicable” if it is “available and capable of being done after taking into consideration cost, existing technology and logistics in light of overall project purposes” (40 CFR §230.10(a)(2)).

If a proposed activity would involve a discharge into a special aquatic site such as a wetland, the Section 404(b)(1) Guidelines distinguish between those projects that are water dependent and those that are not. A water dependent project is one that requires access to water to achieve its basic purpose. A marina is an example of a water dependent project. A non-water dependent project is one that does not require access to water for its basic purpose. A university/school is an example of a non-water dependent project. None of the land uses included in the Applicant’s Preferred Alternative or other alternatives are water dependent.

The Section 404(b)(1) Guidelines establish two “presumptions” for non-water dependent projects that propose a discharge into a special aquatic site: 1) that a practicable alternative is available that does not involve discharge into a special aquatic site; and 2) that all practicable alternatives to a proposed discharge which do not involve a discharge into a special aquatic site would have less adverse impact to aquatic resources. The applicant has the burden of clearly demonstrating that these presumptions do not apply in a particular case (40 CFR §230.10(a)(3)).

A Memorandum of Agreement (MOA) between the EPA and the USACE Concerning the Determination of Mitigation Under the Clean Water Act Section 404(b)(1) Guidelines (1990) summarizes the “sequencing” structure set forth by the Section 404(b)(1) Guidelines: first, avoid impacts to waters, second, minimize impacts, and third, provide compensatory mitigation for unavoidable impacts. In March 2008, the EPA and USACE issued the Compensatory Mitigation Rule (33 CFR Part 332) that provides new standards to ensure no-net-loss of wetlands and

emphasizes use of the best available science. This rule reinforces the goal to first avoid and then minimize impacts to waters.

In addition to the above provisions, the Section 404(b)(1) Guidelines also prohibit discharges that cause or contribute to violation of water quality standards, violate any toxic effluent limit under Section 307 of the Clean Water Act, jeopardize the continued existence of any listed species, or destroy or modify listed species' critical habitat (40 CFR §230.10(b)).

Executive Order 11990: Protection of Wetlands

Executive Order 11990 established the protection of wetlands and riparian systems as the official policy of the federal government. It requires all federal agencies to consider wetland protection as an important part of their policies and take action to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands.

3.6.2.2 State

Section 401 Water Quality Certification/Porter-Cologne Water Quality Control Act

Under Section 401 of the Federal Clean Water Act, applicants for a federal license or permit to conduct activities which may result in the discharge of a pollutant into waters of the United States must obtain certification from the applicable state water quality agency. For California the State Water Resources Control Board (SWRCB), acting through the appropriate RWQCB, must certify that a USACE permit action does not exceed state water quality objectives.

Discharges to wetlands and “other waters of the state” are also subject to state regulation under the California Porter-Cologne Water Quality Control Act (Porter-Cologne; Ca. Water Code, Div. 7, §§ 13000–14958). Water Code section 13260 requires “any person discharging waste, or proposing to discharge waste, within any region that could affect the waters of the state to file a report of waste discharge (Water Code § 13260(a)(1)). The term “waters of the state” is defined as “any surface water or groundwater, including saline waters, within the boundaries of the state” (Water Code § 13050(e)). Therefore, whether or not USACE has jurisdiction under Section 404 of the Clean Water Act, the SWRCB and RWQCB have jurisdiction to regulate waters of the state by issuing Waste Discharge Requirements or waivers thereof. Pursuant to Resolution No. 2008-0026, the SWRCB is developing a policy to protect wetland and riparian areas in support of water quality benefits within the state; this policy has not yet been finalized.

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3.7 Cultural and Historic Resources

This section discusses the cultural, historic and paleontological setting of the project site and vicinity. The area of potential effects (APE) for purposes of the cultural and historic resources discussion is shown in **Figure 3.7-1**.

3.7.1 Existing Setting

3.7.1.1 Archaeology

Central Valley California archaeology has been described as a series of patterns. Fredrickson (1973) defines pattern as an essentially non-temporal, integrative cultural unit - the general life way shared by people within a given geographic region. Specifically three such patterns, which overlap somewhat in adjoining areas, are recognized for Central Valley California: the Windmill, Berkeley, and Augustine Patterns.

The Windmill Pattern, which may represent the advent of early Penutian speaking populations, extends from approximately 4,500 to 3,000 years before present. This pattern was focused primarily on the lower Central Valley and Delta regions, and reflects the influence of a lacustrine or marsh adaptation.

The Berkeley Pattern extends roughly from 3,000 to 1,500 years before present. The Berkeley Pattern has a greater emphasis on the exploitation of the acorn as a staple than the earlier Windmill Pattern. The Berkeley Pattern initially may represent the spread of proto-Miwok and Costanoans, collectively known as Utians, from their hypothesized lower Sacramento Valley/Delta homeland.

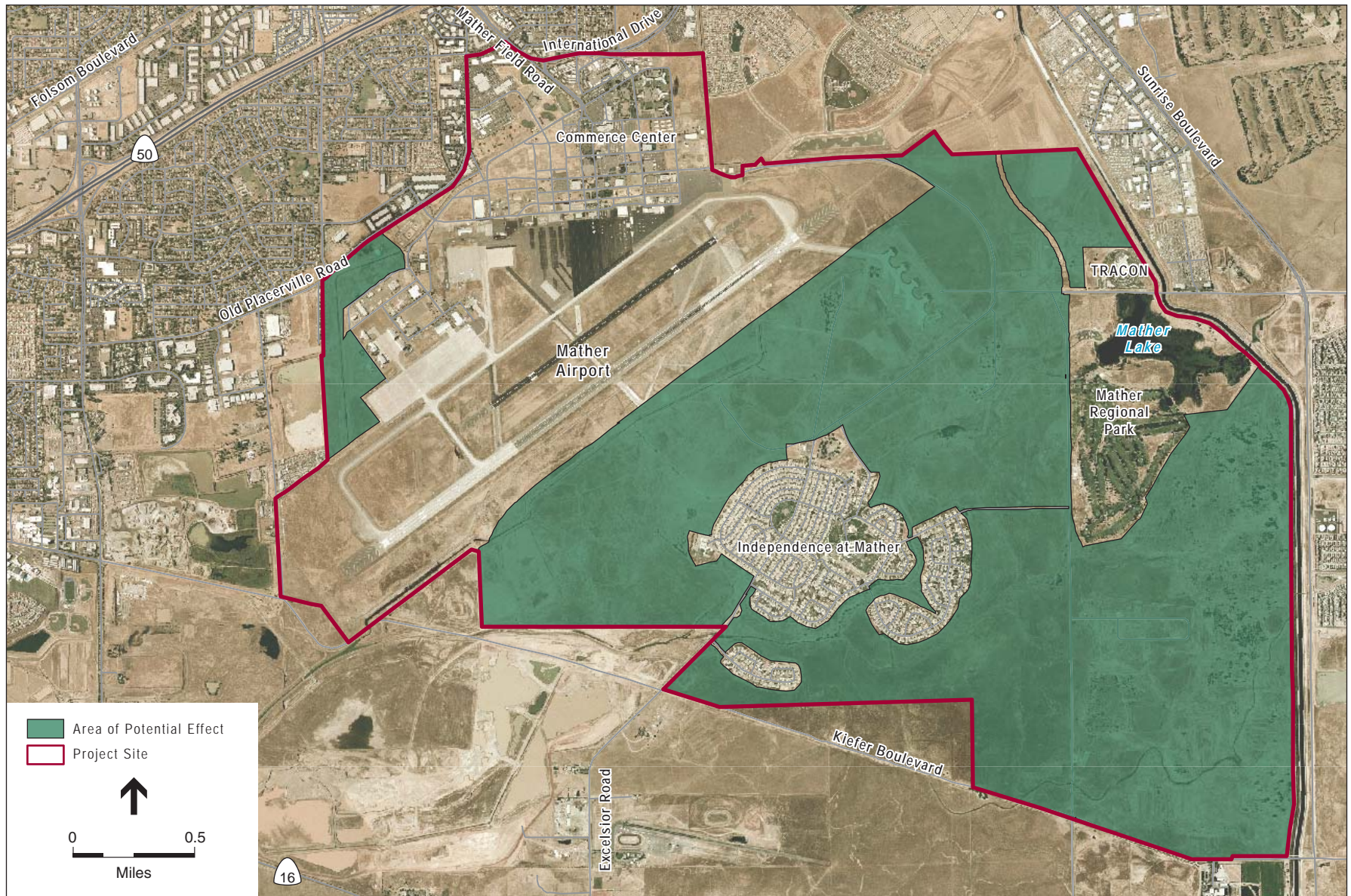
The Augustine Pattern extended temporally from circa 1,500 years before present to European contact. Augustine initially appears to be largely an outgrowth of the Berkeley Pattern but may have become a blend of Berkeley traits with those carried into the state by the migration of Wintuan populations from the north (Moratto, 1984).

3.7.1.2 Ethnographic Setting

The project area is believed to have been inhabited ethnographically by the Nisenan, also known as Southern Maidu, and the Plains Miwok. The Nisenan, together with the Maidu and Konkow, form the Maiduan language family of the Penutian linguistic stock (Shipley, 1978). The traditional area of the Southern Nisenan is thought to have been located between the drainages of the Feather River and the American River. Within this region, the Nisenan are thought to have occupied the area from about Big Chico Creek to the American River or the Cosumnes River (Powers, 1877).

3.7.1.3 Historical Setting

Prior to the Gold Rush, the first recorded non-Native presence in the area was in 1827 by Jedediah Smith whose trapping group explored the area in his search for a pass over the Sierra Nevada. Johann August Sutter arrived in San Francisco in 1839 with a Mexican general passport for a small colony which grew into an enormous land grant of 48,000 acres at the junction of the Sacramento and



SOURCE: NAIP, 2009; and ESA, 2010

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Figure 3.7-1
Area of Potential Effect

American Rivers. Here he established New Helvetia (present day Sacramento). In 1839, Sutter built an adobe house which in four years grew into a wooden-walled trading post known as Sutter's Fort. In 1844 William A. Leidesdorff was granted 35,000 acres along the American River called "The Rancho Rio de los Americanos" (Hoover et al., 2002).

When gold was discovered in 1848, mining camps sprang up along the Sacramento and American rivers. Agricultural communities in the American River basin were established in order to feed the miners, and expanded as miners left the gold fields and turned to farming and ranching.

A description of the history associated with Mather Air Force Base is included in **Chapter 1.0, Section 1.3.1**. In summary, the base was used by the Air Force at various times from 1918 to 1993 and the airfield itself was reopened as a civilian airport in 1995.

3.7.1.4 Research Methods

Records and Literature Search

Methodology

A records search was conducted at the North Central Information Center (NCIC) of the California Historical Resources Information System at Sacramento State University in April 2008 (NCIC# SAC-08-56) and October 2010. Records were accessed by reviewing the Buffalo Creek and Carmichael 7.5-minute quadrangle base maps. Additional research was conducted using the files and literature at ESA. The records search included a 1/4-mile radius around the APE in order to (1) determine whether known cultural resources had been recorded within or adjacent to the APE; (2) assess the likelihood of unrecorded cultural resources based on historical references and the distribution of environmental settings of nearby sites; and (3) develop a context for identification and preliminary evaluation of cultural resources.

Included in the review were *California Historical Resources* (California Department of Parks and Recreation 1976), *California Historical Landmarks* (1996), *California Points of Historical Interest* (1992), and the *Historic Properties Directory Listing* (California Office of Historic Preservation, 2010). Historic-period maps (USGS, 1898, 1901, 1954) were also reviewed.

Records Search Results

Results of the cultural resources records search conducted at the NCIC indicate that the APE had been previously surveyed. These surveys are listed in **Table 3.7-1**.

The Records Search results also included the identification of six sites (P-34-1664, P-34-1979, P-34-1980, P-34-1981, P-34-4166, and P-34-4167) within the APE, plus an additional six sites within ¼ mile of the APE and are described in **Table 3.7-2**.

No National Register of Historic Places, California Register of Historic Places, California State Historic Landmarks, or California Points of Historical Interest were identified within the APE or ¼ mile of the APE. The closest California Historic Landmark is the Pony Express Fifteen Mile House (CHL 698) located approximately 0.5 miles from the APE on White Rock Road and

Gold Valley Drive in Rancho Cordova. The closest site listed on the National Register of Historic Places is Brighton School, approximately 2 miles northwest of the APE.

Two additional surveys were completed within the airport boundaries in March 2010 which were not included in the updated record search (Pacific Legacy, 2010; JRP, 2010). At the time of the update, these reports were still under review; however, copies of these reports were made available and the resources recorded as part of these surveys are listed in Table 3.7-2.

**TABLE 3.7-1
PREVIOUS ARCHAEOLOGICAL SURVEYS
WITHIN ¼ MILE RADIUS OF THE APE**

Survey Number	Date of Survey	Report Generated By	Within APE (Y/N)?
88	1974	Johnson, Jerald J	Y
185	1985	Archaeological Study Center	Y
1715	1990	Peak & Associates, Inc.	N
2383	1999	Peak & Associates, Inc.	N
3016	1994	EIP Associates	N
3017	1996	Sacramento County Department of Environmental Review and Assessment	N
3072	1997	U.S. Department of Transportation Federal Aviation Administration	N
5003	1997	Judy Berryman Ph.D.	N
5849	2005	Peak & Associates, Inc.	N
6042	1992	Biosystems Analysis Inc.	N
6076	2001	Earthtouch, LLC	N
6086	2005	SWCA Environmental Consultants	N
6516	2005	Cingular Wireless	N
8328	2007	Earthtouch, LLC	N
6176	2004	Sacramento County Department of Environmental Review and Assessment	N
8949	2007	Earthtouch, LLC	N
9158	1988	No Name Listed	N
9202	2007	ArchaeoMetrics, Inc	Y
9667	2008	EarthTouch, Inc.	Y
9893	2008	Genesis Society	N
10064	2009	Ric Windmiller, Consulting Archaeologist	N
10557	2009	PAR Environmental Services, Inc.	Y
NA	2010	Pacific Legacy	Y
NA	2010	JRP Historical Consultants	Y

**TABLE 3.7-2
PREVIOUSLY RECORDED CULTURAL RESOURCES
WITHIN ¼ MILE RADIUS OF THE APE**

	Date Recorded	Description	Within APE?	Recommended NRHP Eligible/ Listed
P-34-1664	2006	An elevated steel water tower and tank with associated modern equipment once owned and operated by Mather Air Force Base.	Yes	No
P-34-1979	2007	A 10'x15' rectangular concrete foundation, likely built post-1940.	Yes	No
P-34-1980	2007	Four foundations (2 residential, 1 unknown, and 1 garage), likely built post-1940 and associated with military operations.	Yes	No
P-34-1981	2007	Large military warehouse (95'x33'), likely built post-1940.	Yes	No
P-34-2216	2008	Remnants of 19 th century house	No	No
P-34-2217	2008	Late 19 th century fence line	No	No
P-34-2219	2008	Historic artifact scatter	No	No
P-34-2221	2008	Windmill and well	No	No
P-34-2224	2008	1955 residential structure – original office	No	No
P-34-2225	2008	1940s residential structure – watchman's house	No	No
P-34-4166	2009	A 40'6" by 9'9" structure used to store munitions, likely built in the 1950s	Yes	No
P-34-4167	2009	A 120' by 260' board formed concrete foundation.	Yes	No
MAMP-01	2010	Infrastructure at Mather Air Force Base	Yes	No
MAMP-02	2010	Railroad spur	No	No
MAMP-03	2010	Concrete foundations, well, and trash area	Yes	No
MAMP-04	2010	Trash Pit	Yes	No
Building 4376	2010	WWII-era Aircraft Hanger	Yes	No
39 Structures	2010	39 other structures and groups of structures related to operations at Mather Air Force Base	No	No

Field Survey

Methodology

An intensive archaeological survey of the accessible portions of the APE was conducted for areas which were not included within previous surveys conducted between 2006 and 2010. Brian S. Marks, Ph.D. who meets the Secretary of the Interior's Standards for Professional Qualifications for archaeology and is a Registered Professional Archaeologist, conducted the archaeological survey from September 20 to October 15, 2010, with the assistance of Damien Tietjen and Heidi Koenig (Registered Professional Archaeologist), who both meet the Secretary of the Interior's Standards for Professional Qualifications for archaeology and Katherine Anderson, who meets the Secretary of the Interior's Standards for a professional historian. In undeveloped portions of the APE, the survey consisted of archaeologists walking 30-meter transects from east to west or north to south, depending on the terrain. In areas of poor surface visibility, a small section of vegetation was scraped back every 20-30 meters to view the ground surface.

In developed and disturbed areas (large ditches, new asphalt roads, concrete sidewalks), surface soils not covered by pavement or other development were spot-checked. Areas that had been previously surveyed in 2007 and in 2010 were not surveyed again.

A concerted effort was made to relocate all previously recorded resources within the survey area, as well as to identify new resources. All previously recorded resources and all newly documented resources were recorded on standard Department of Parks and Recreation (DPR) forms, plotted using a Trimble GeoXT global positioning system unit, and their locations noted on a topographic map of the project area.

Field Survey Results

All previously recorded resources within the APE (Table 3.7-2) were re-visited and found to have undergone no substantial changes since their recordation; all still appear to not be eligible for the National Register of Historic Places (NRHP). The field survey of the APE (excepting areas slated for conservation and previously developed areas) found that the majority of the landscape has extremely poor surface visibility due to the presence of tall grasses. The survey resulted in the recordation of two isolated artifacts, four archaeological sites, and 23 historic-period structures¹. The isolated artifacts (MSP-05 and 06) are prehistoric flakes and the four archaeological sites (MSP-01, 04, 07, and 08) are comprised of two wooden fence posts with a cut nail, a refuse dump of burned munitions, and two foundation remains of 1940s structures. Of the 23 historic-period structures, three were a WWII-era munitions bunker (MSP-02), a 1950s-era underground utility vent (MSP-03), and a cinder block structure located near the former ready area (MSP-RAB-01). Ten of the remaining structures (MSP-MSB-01 through 10) are part of Cold-War era munitions storage area that included four earthen covered bunkers, while the remaining ten structures (MSP-RSB-01 through 10) are associated with the radar station south of the airport.

The isolated finds and archaeological sites do not appear to have any significance to the local history as they do not appear to have integrity, nor is there any evidence that they played a significant role in the history of the area. While the newly recorded historic-period structures have not been comprehensively surveyed and evaluated for NRHP-eligibility, they do not appear to have any significance to local or regional history based on field observations.

Native American Coordination

The Native American Heritage Commission (NAHC) was contacted on June 29, 2010 to request a database search for sacred lands or other cultural properties of significance within or adjacent to the APE. A response was received on July 7, 2010. The sacred lands survey did not identify the presence of cultural resources in the APE. The NAHC provided a list of Native American contacts that might have further knowledge of the APE with respect to cultural resources. Each person or organization identified by the NAHC was contacted by letter on July 7, 2010. Roselynn Lwenya of the Buena Vista Rancheria contacted ESA on July 20, 2010, requesting additional information regarding any planned archaeological surveys intended for the project area. A telephone response

¹ Historic structures refer to structures which are still standing, archaeological sites is used to refer to collapsed structures and foundation remnants.

to Buena Vista Rancheria informed them that a cultural resources survey would be conducted. The survey was completed October 2010. No other responses have been received to date.

3.7.1.5 Paleontological Resources

Paleontological resources are the fossilized remains of plants and animals. The University of California Museum of Paleontology Collections (UCMP) Database was accessed on August 13, 2010 and reviewed for any listed paleontological resources within the project site. Forty-six paleontological resources have been identified within Sacramento County, and all of these resources date to the Pleistocene epoch. No Holocene resources have been identified in the County. As such, no paleontological resources are anticipated in the APE.

3.7.2 Regulatory Setting

3.7.2.1 Federal

National Historic Preservation Act

Section 106 of the NHPA and its implementing regulations (36 CFR Part 800, as amended in 2004) require federal agencies to consider the potential effects of their proposed undertakings on historic properties. Historic properties are cultural resources that are listed on, or are eligible for listing on, the NRHP (36 CFR §800.16[1]). Undertakings include activities that federal agencies directly carry out, fund, or permit. Federal agencies must also allow the Advisory Council on Historic Preservation (ACHP) to comment on the proposed undertaking and its potential effects on historic properties. The Applicant's Preferred Alternative and other development alternatives would require a Department of the Army permit under Section 404 of the Clean Water Act from the U.S. Army Corps of Engineers (USACE), Sacramento District.

Section 106 Process

The implementing regulations for Section 106 of the NHPA (36 CFR Part 800) require consultation with the State Historic Preservation Officer (SHPO), the ACHP, federally recognized Indian tribes and other Native Americans, and interested members of the public throughout the compliance process. The four principal steps are:

- if the undertaking has the potential to effect historic properties, initiate consultation with SHPO (36 CFR §800.3);
- identify historic properties and other resources on or eligible for inclusion in the NRHP (36 CFR Section §800.4);
- assess the effects of the undertaking on historic properties within the area of potential effect (36 CFR §800.5); and
- resolve adverse effects (36 CFR §800.6).

Adverse effects on historic properties are often resolved through preparation of a memorandum of agreement or programmatic agreement developed in consultation between the federal agency, the SHPO, Indian tribes and ACHP.

National Register of Historic Places

The NRHP listing criteria are as follows (36 CFR §60.4):

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

- a. that are associated with events that have made a significant contribution to the broad patterns of our history; or
- b. that are associated with the lives of persons significant in our past; or
- c. that embody the distinctive characteristics of a type, period or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- d. that have yielded, or may be likely to yield, information important in prehistory or history.

American Indian Religious Freedom Act

The American Indian Religious Freedom Act of 1978 applies to federal undertakings. This act established “the policy of the United States to protect and preserve for American Indians their inherent right of freedom to believe, express, and exercise the traditional religions...including but not limited to access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites” (42 United States Code §1996).

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3.8 Socioeconomics and Environmental Justice

This section provides the setting for socioeconomic conditions and environmental justice for the project site and vicinity. For the socioeconomic analysis, data are presented for both the unincorporated area of Sacramento County (including the project site) and Sacramento County as a whole. For the environmental justice discussion, income and race data are presented for the census tract which includes the project site. These data are then compared to the County as a whole.

3.8.1 Existing Setting

3.8.1.1 Population

The regional and local population estimates and projections relevant to the project site are summarized in **Table 3.8-1**. The incorporation of the cities of Elk Grove and Rancho Cordova, resulted in a loss of population attributed to the unincorporated area.

**TABLE 3.8-1
POPULATION ESTIMATES AND PROJECTIONS FOR SACRAMENTO COUNTY**

Location	1990 ¹	2000 ¹	2010 ²	2035 ³
Sacramento County	1,041,219	1,223,499	1,445,327	1,986,543
Citrus Heights	*	85,071	88,115	94,308
Elk Grove	*	*	143,885	192,889
Folsom	29,802	51,884	71,453	101,461
Galt	8,889	19,472	24,264	39,429
Isleton	833	828	822	2,239
Rancho Cordova	*	*	62,889	162,825
Sacramento	369,365	407,018	486,189	642,257
<i>Unincorporated County</i>	632,330	659,226	567,700	751,135

SOURCE: 1) California Department of Finance, 2007a; 2) California Department of Finance 2010a, 3) SACOG, 2008a.

3.8.1.2 Housing

Regional and local housing estimates and projections are summarized in **Table 3.8-2**.

**TABLE 3.8-2
HOUSING ESTIMATES FOR SACRAMENTO COUNTY**

Location	1990¹	2000¹	2010²
Sacramento County	417,574	474,814	556,208
Citrus Heights	*	34,897	35,721
Elk Grove	*	*	48,532
Folsom	9,418	17,968	25,715
Galt	3,073	6,211	7,682
Isleton	352	384	378
Rancho Cordova	*	*	24,786
Sacramento	166,205	223,417	195,446
<i>Unincorporated County</i>	<i>251,369</i>	<i>251,397</i>	<i>217,948</i>

NOTE: The incorporation of the cities of Elk Grove and Rancho Cordova resulted in a loss of housing attributed to the unincorporated area from 2000 to 2010.

SOURCE: 1) California Department of Finance, 2007b; 2) California Department of Finance, 2010b.

The estimated vacancy rate for all of Sacramento County is 7.6 and 7.7 percent for the unincorporated area of the County (California DOF, 2012). According to the California Department of Housing and Community Development (California HCD), a housing vacancy rate of 5 percent is considered normal (California HCD, 2000). Vacancy rates below 5 percent could indicate a housing shortage in a community.

Housing projections have been developed by the Sacramento Area Council of Governments (SACOG) within the Regional Housing Needs Plan (RHNP). The RHNP is mandated by the State of California (California Government Code Section 65584) to address housing issues and needs based on future growth projections for the area. The RHNP is developed by SACOG and allocates to cities and counties their “fair share” of the region’s projected housing needs based on household income groupings over a 7.5-year planning period for each jurisdiction’s Housing Element. **Table 3.8-3** shows the County’s allocation of regional housing needs for the 2006–2013 planning period. SACOG anticipates that a total of 15,160 additional housing units would be required for unincorporated Sacramento County during the current planning period to meet regional housing needs (SACOG, 2008b). The Draft RHNP for the 2013 to 2021 planning period estimates a need for 13,844 additional housing units in unincorporated Sacramento County by 2021 (SACOG, 2012).

3.8.1.3 Employment

Sacramento County’s total resident labor force was approximately 671,100 in April 2012 with an unemployment rate of 10.5 percent (not seasonally adjusted) (California EDD, 2012). In the County as a whole, approximately 555,100 jobs existed in 2010 compared to 614,700 in 2006 (California Department of Transportation, 2011). Over the next 30 years, job growth is expected to occur primarily in Roseville, Rancho Cordova, North Natomas, West Sacramento, and Lincoln (SACOG, 2007).

**TABLE 3.8-3
REGIONAL HOUSING NEEDS ALLOCATION 2006-2013**

Income Grouping	Required Housing Units from 2006 to 2013
Very Low	3,339
Low	2,293
Moderate	2,700
Above moderate	6,828
Total	15,160

SOURCE: SACOG, 2008b.

3.8.1.4 Environmental Justice Issues

The following discussion summarizes whether minority or low-income populations exist within the project site vicinity. Census tracts can be used to determine demographic information for areas of various sizes. Traditionally, census tract boundaries follow visible features and may also coincide with city, towns or other administrative limits. The project site is located in Sacramento Census Tract 008800, as shown in **Figure 3.8-1**. As discussed below, Census Tract 008800 does not contain minority or low-income populations.

Minority Populations

According to the Council on Environmental Quality guidelines for environmental justice analysis, “Minority populations should be identified where either (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the majority population percentage in the general population or other appropriate unit of geographic analysis...A minority population also exists if there is more than one minority group present and the minority percentage, as calculated by aggregating all minority persons, meets one of the above-stated thresholds” (CEQ, 1997).

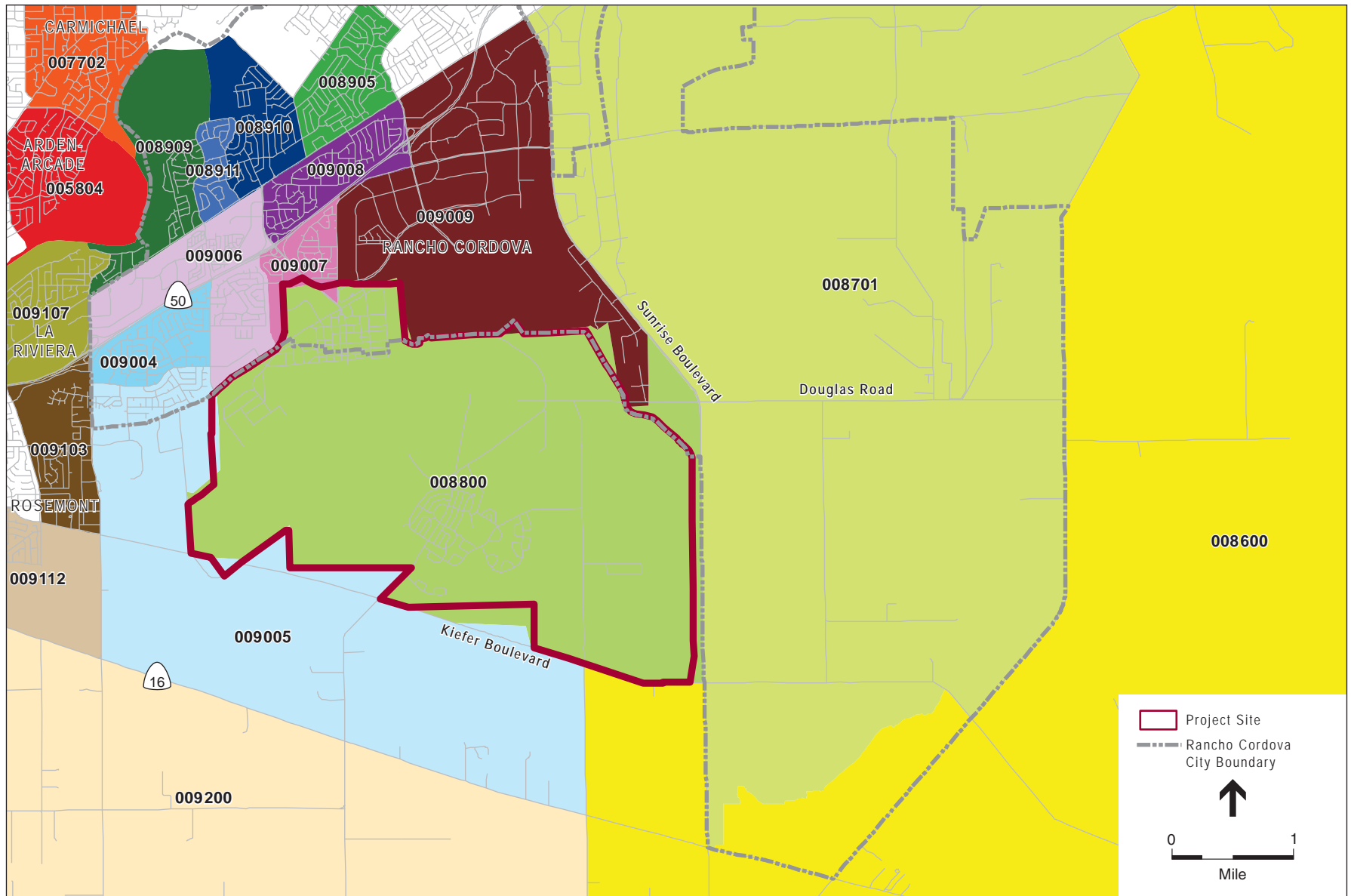
Table 3.8-4 presents the racial composition for Sacramento County and Census Tract 008800 derived from the 2005-2009 American Community Survey. The racial composition for Census Tract 008800 is comparable to the rest of the County and cumulatively minorities do not exceed 50 percent. Thus, development on the project site is not anticipated to disproportionately affect minority populations.

**TABLE 3.8-4
RACIAL COMPOSITION**

	White	Hispanic / Latino	Black / African American	American Indian / Alaska Native	Asian	Native Hawaiian / Pacific Islander	Other
Sacramento County	52.2%	19.8%	9.8%	0.7%	13.2%	0.8%	3.5%
Census Tract 008800	51.2%	16.3%	7.0%	1.5%	15.9%	1.9%	6.2%

Other includes two or more races and some other race categories.

SOURCE: 2005-2009 American Community Survey (ACS) data available at <http://factfinder.census.gov/>



SOURCE: NAIP, 2006; ESRI, 2009; and ESA, 2010

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Figure 3.8-1
Census Tracts

Income

The Council on Environmental Quality's (CEQ) environmental justice guidance does not clearly set poverty thresholds, but states that "Low-income populations in an affected area should be identified with the annual statistical poverty thresholds from the Bureau of the Census' Current Population Reports, Series P-60 on Income and Poverty." The most relevant data available for comparison of the project area to Sacramento County is available from the 2005-2009 American Community Survey (U.S. Census, 2009). Within Census Tract 008800 approximately 13.9% of individuals are below poverty level (620 individuals out of the 4,463 individuals for whom income status could be determined). Within Sacramento County approximately 13.2% of individuals are below poverty level (177,900 out of the 1,349,124 for whom income status could be determined). Poverty levels for Census Tract 008800 are comparable to the remainder of the County and do not exceed 50 percent. Thus, development on the project site is not anticipated to disproportionately affect low-income populations.

3.8.2 Regulatory Setting

3.8.2.1 Federal

Executive Order 12898

Federal agencies are directed by Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low Income Populations*, as amended, to develop an Environmental Justice Strategy that identifies and addresses disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations. CEQ, with assistance from the Environmental Protection Agency (EPA) and other agencies, has developed guidance to assist Federal agencies with their NEPA procedures so that environmental justice concerns are effectively identified and addressed. CEQ's *Environmental Justice Guidance under the National Environmental Policy Act* advises agencies to consider the composition of the affected area, to determine whether minority populations, low-income populations, or Indian tribes are present in the area affected by the proposed action, and if so, whether there may be disproportionately high and adverse environmental effects to these populations.

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3.9 Transportation and Traffic

This section presents a description of existing transportation and circulation conditions for key intersections, roadways, pedestrian, bicycle, and transit facilities in the project site and vicinity. Additional technical data is provided in the Transportation Analysis (**Appendix E**).

3.9.1 Existing Setting

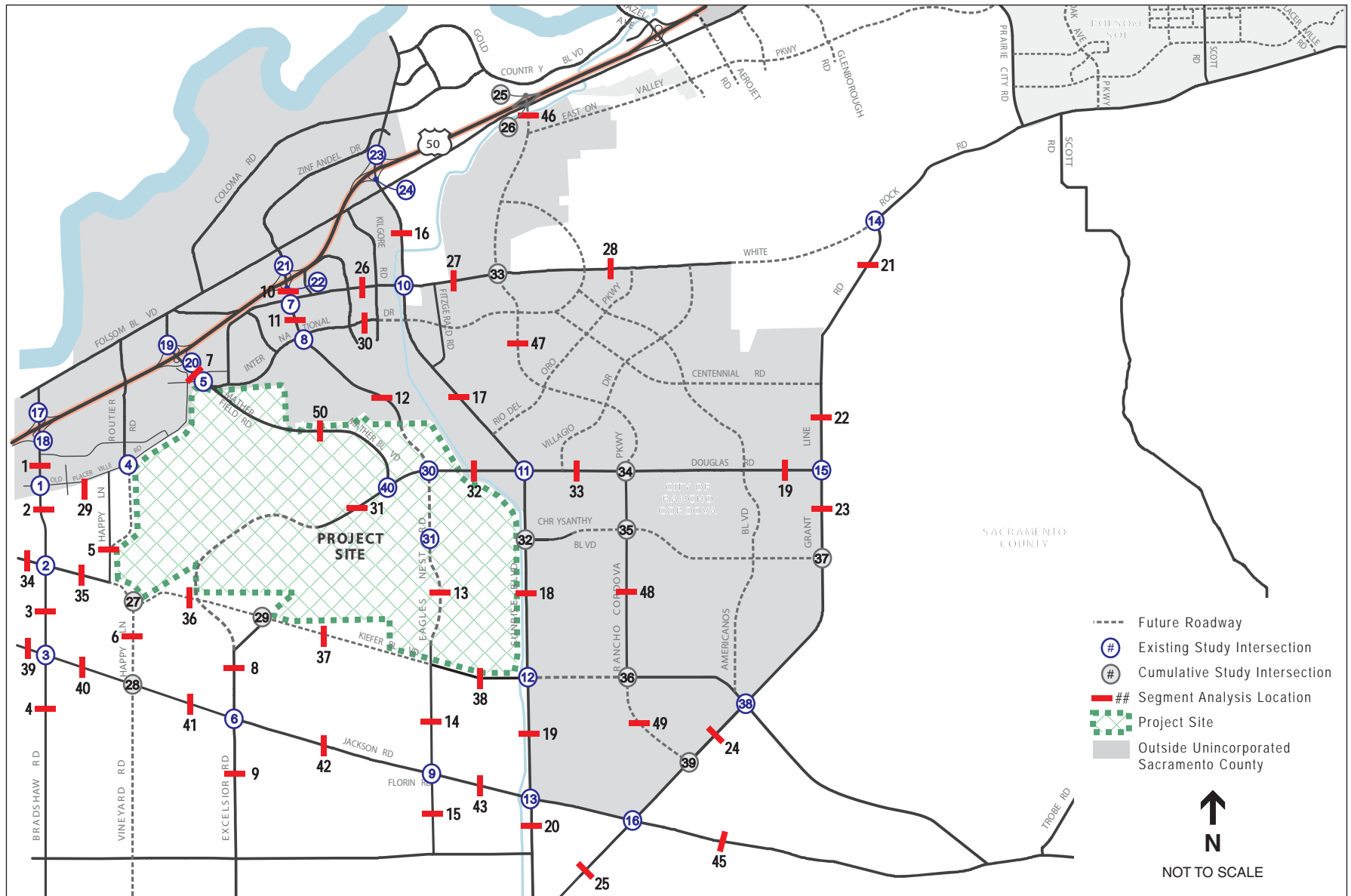
The study area for this environmental document was defined in consultation with the Sacramento County Department of Transportation, and is identified in **Figure 3.9-1**. It includes 40 intersections, 50 roadway segments, and portions of the U.S. 50 freeway system from Bradshaw Road to the location of the future Rancho Cordova Parkway. Information on the existing transportation system was assembled from field observations, surveys (including traffic counts), previous environmental reports, and available information from the County of Sacramento, Caltrans, the Sacramento Area Council of Governments (SACOG), and Regional Transit.

3.9.1.1 Existing Roadways

U.S. Highway 50 (U.S. 50) and State Route 16 (SR-16 or Jackson Road) provide regional access to the project site. U.S. 50 is an east-west freeway that extends from the Interstate 80 (I-80) junction in West Sacramento to Canal Street in the City of Placerville, where it continues as a highway across the Sierra Nevada to South Lake Tahoe and Nevada. SR-16 is an east-west facility that extends from Folsom Boulevard to the west into Amador County to the east. It is a two-lane highway with at-grade intersections which connects the City of Sacramento with the Sierra foothills.

Other key roadways near the project site include the following:

- **Bradshaw Road** is a two to six-lane north-south arterial roadway west of the project site that extends from north of Folsom Boulevard to Grant Line Road.
- **Routier Road** is a north-south roadway northwest of the project site. It extends from Old Placerville Road to Folsom Boulevard.
- **Mather Field Road** is a four to six-lane divided arterial providing access from Folsom Boulevard and U.S. 50 to the project site.
- **Excelsior Road** is a rural two-lane north-south roadway that extends from the Sheldon Road near Grant Line Road through the Independence at Mather development to Douglas Road.
- **Zinfandel Drive** extends from Sunrise Boulevard in Rancho Cordova north of U.S. 50 to Douglas Road within the project site. As it crosses U.S. 50, Zinfandel Drive has three through lanes in the northbound direction and two through lanes in the southbound direction.
- **Eagles Nest Road** is a rural north-south road that extends from Douglas Road on the project site to Grant Line Road. Eagles Nest Road is not maintained and is not open to public traffic.



SOURCE: DKS Associates, 2010; and ESA, 2010

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Figure 3.9-1
 Transportation Study Area and
 Analysis Locations

- **Sunrise Boulevard** is a north-south roadway designated as a thoroughfare within the County. It has six lanes between U.S. 50 and White Rock Road, four to six lanes between White Rock Road and Douglas Road, five lanes between Douglas Road and Kiefer Boulevard, and two lanes between Kiefer Boulevard and Grant Line Road.
- **Grant Line Road** is a two-lane north-south rural roadway east of the project site. It extends from White Rock Road to Highway 99 south of Elk Grove.
- **White Rock Road** is a two to six lane east-west roadway that provides access to the office parks/light industrial uses northeast of the project site. It begins at International Drive and continues easterly into El Dorado County.
- **Old Placerville Road** is a two to four-lane east-west roadway that extends from just west of Bradshaw Road to Rockingham Drive just west of Mather Field Road.
- **International Drive** is a four to six-lane divided roadway connecting Mather Field Road east to Sunrise Boulevard
- **Douglas Road** is a two-lane, east-west road which exits the east boundary of the project site. It continues as a two to five-lane roadway to the east across Sunrise Boulevard to Grant Line Road.
- **Kiefer Boulevard** is an east-west roadway that extends from Folsom Boulevard to east of Sunrise Boulevard, generally forming the southern boundary of the project site. Kiefer Boulevard is not maintained and is not open to public traffic between Happy Lane and Eagles Nest Road.

3.9.1.2 Public Transit System

All public transit service for the project site is provided by the Sacramento Regional Transit District (RT). The RT operates 97 bus routes and 37.4 miles of light rail covering a 418 square-mile service area. Bus service is only provided to the northern portion of the project site, e.g. to International Drive and Mather Boulevard.

3.9.1.3 Pedestrian and Bicycle Facilities

No pedestrian or bike facilities exist on the project site. The nearest pedestrian and bicycle facilities are located in the City of Rancho Cordova to the north and east.

3.9.2 Study Methods

3.9.2.1 Definitions and Criteria for Analysis

Determination of roadway operating conditions is based upon comparison of traffic volumes to roadway capacity. Levels of service (LOS) describe roadway operating conditions and are defined in **Table 3.9-1**. Freeway LOS descriptions are included in **Table 3.9-2**.

**TABLE 3.9-1
ROADWAY LEVEL OF SERVICE DEFINITIONS**

LOS A describes primarily free-flow operations at average travel speeds, usually 90 percent of the free-flow speed for the given street class. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at signalized intersections is minimal.

LOS B describes reasonably free-flow operations at average travel speeds, usually 70 percent of the free-flow speed for the given street class. The ability to maneuver within the traffic stream is only slightly restricted and control delay at signalized intersections are not significant.

LOS C describes stable operations: however, ability to maneuver and change lanes in midblock locations may be more restricted than at LOS B and longer queues, adverse signal coordination, or both may contribute to lower average travel speeds of about 50 percent of the free-flow speed for the street class.

LOS D borders on a range in which small increases in flow may cause substantial increases in delay and decreases in travel speed. LOS D may be due to adverse signal progression, inappropriate signal timing, high volumes, or a combination of these factors. Average travel speeds are about 40 percent of the free-flow speed

LOS E is characterized by significant delays and average travel speeds of 33 percent or less of the free-flow speed. Such operations are caused by a combination of adverse progression, high signal delay, high volumes, extensive delays at critical intersections and inappropriate signal timing.

LOS F is characterized by urban street flow at extremely low speeds, typically one-third to one-fourth of the free-flow speed. Intersection congestion is likely at critical signalized locations, with high delays, high volumes and extensive queuing.

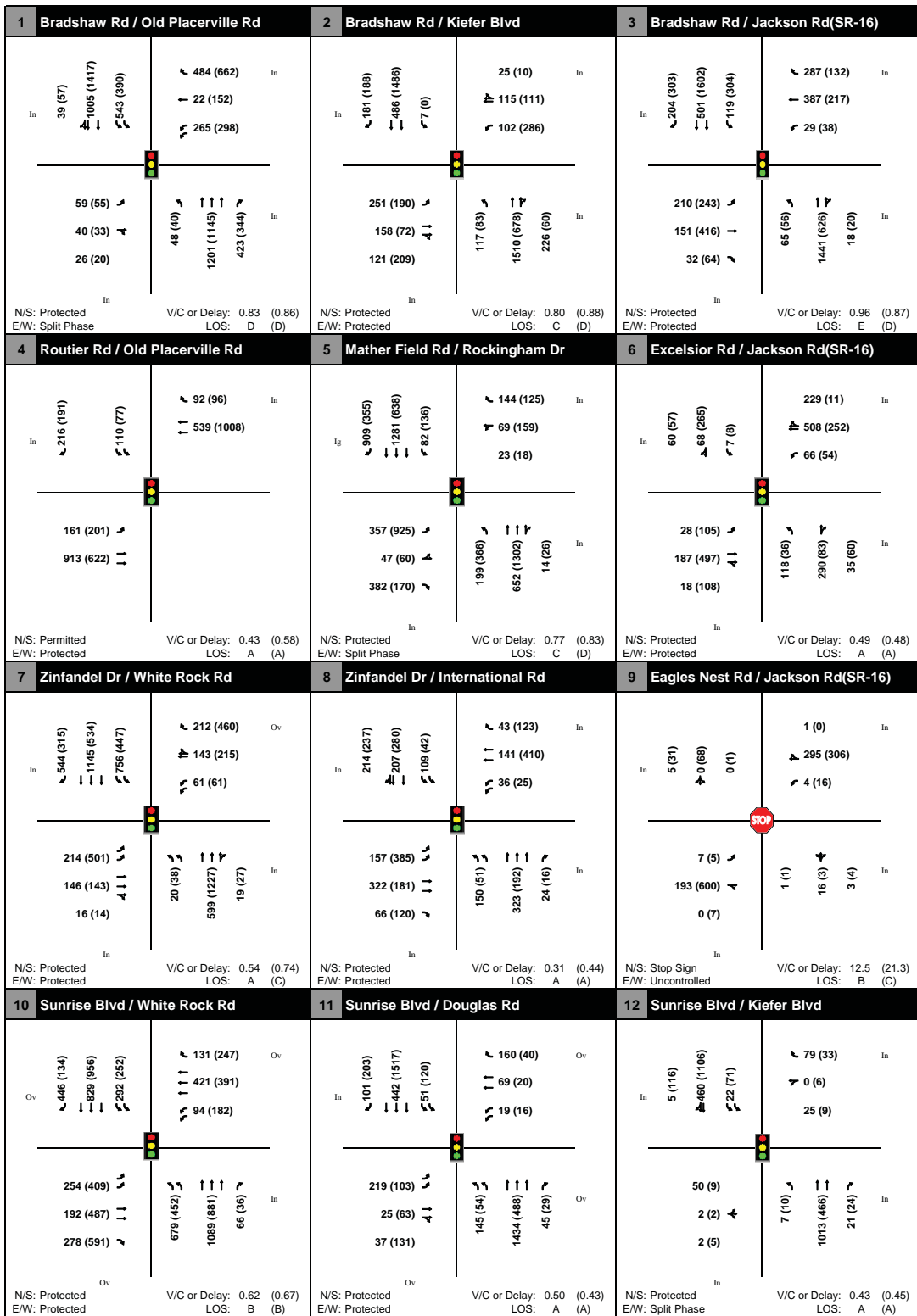
SOURCE: Transportation Research Board, 2000

**TABLE 3.9-2
FREEWAY MAINLINE SEGMENT LEVEL OF SERVICE CRITERIA**

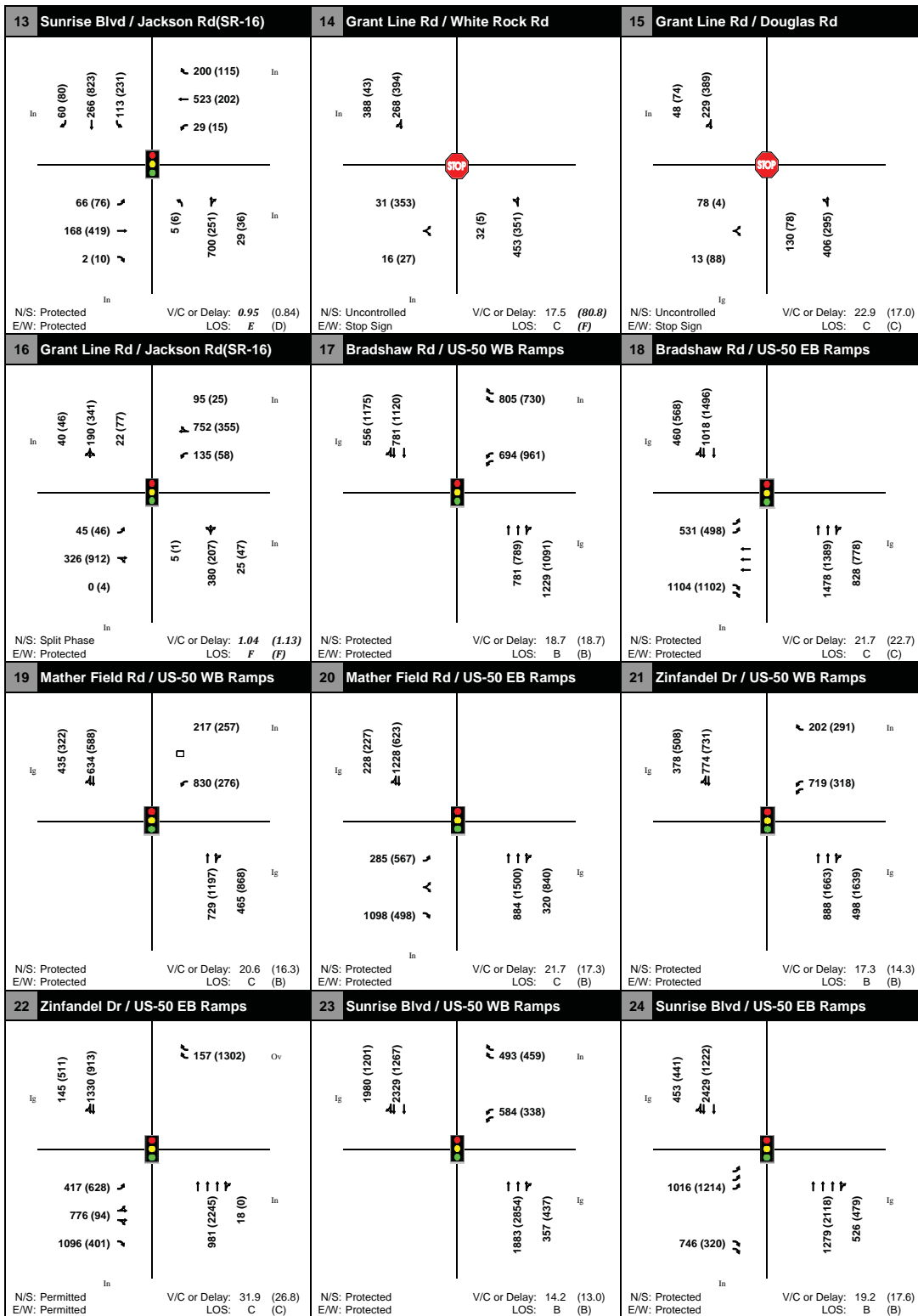
Level of Service (LOS)	Description
A	Excellent.
B	Very Good.
C	Good.
D	Fair.
E	Poor. Maximum density at which sustained flows at capacity are expected to occur.
F	Failure. Breakdown and congestion occurs when queues begin to form on the freeway.

Density given as passenger cars per mile per lane.
SOURCE: Transportation Research Board, 2000

The methodology used for conducting the intersection, roadway and freeway analysis is included in **Appendix E**. Existing a.m. and p.m. peak hour traffic volumes and lane geometry at the study area intersections are illustrated in **Figure 3.9-2a** and **3.9-2b**.



Notes: AM (PM) Peak Hour Results
 "In"=Include, "Ig"=Ignore, and "Ov"=Overlap assumed for Right-turn movement in analysis.



Notes: AM (PM) Peak Hour Results
 "In"=Include, "Ig"=Ignore, and "Ov"=Overlap assumed for Right-turn movement in analysis.

3.9.2.2 Existing Operating Conditions

Sacramento County Intersections

Table 9 of **Appendix E** summarizes a.m. and p.m. peak hour operating conditions and the peak-hour traffic signal warrants analyses at the study intersections. During the a.m. and p.m. peak hours, all of the Sacramento County intersections in the study area meet the LOS "E" standard within the Urban Service Boundary (USB) and the LOS "D" standard outside the USB¹ with the exception of the Grant Line Road and White Rock Road intersection which operates at LOS "F".

City of Rancho Cordova Intersections

During the a.m. and p.m. peak hours, all of the City of Rancho Cordova intersections in the study area meet the LOS "D" standard with the exception of the following intersections: Sunrise Boulevard and SR-16 operates at LOS "E"; Grant Line Road and SR-16 operates at LOS "F".

Caltrans State Highway Intersections

During the a.m. and p.m. peak hours, all of the Caltrans State Highway intersections meet the LOS "E" standard.

Sacramento County Roadway Segments

All of the Sacramento County roadway segments in the study area meet the LOS "E" standard within the Urban Service Boundary and the LOS "D" standard outside the boundary, with the exception of Bradshaw Rd, from Old Placerville Road to Kiefer Boulevard, which operates at LOS "F".

City of Rancho Cordova Roadway Segments

All of the City of Rancho Cordova roadway segments in the study area meet the LOS "D" standard with the following exceptions: Bradshaw Road from US-50 to Old Placerville Road (operates at LOS "F"); Old Placerville Road from Bradshaw Road to Routier Road (operates at LOS "F"); Sunrise Boulevard from Folsom Boulevard to White Rock Road (operates at LOS "E"); Sunrise Boulevard from Kiefer Boulevard to SR-16 (operates at LOS "E").

Caltrans Freeway Mainline

LOS analyses were also conducted for the study area freeway segments based upon a.m. peak hour traffic volumes, and number of lanes. Table 11 of **Appendix E** summarizes the freeway LOS. All of the Caltrans freeway segments meet the LOS "E" standard.

Caltrans Freeway Merge, Diverge, and Weaving Areas

LOS analyses were also conducted for the study area freeway merge, diverge, and weaving areas. Table 12 of **Appendix E** summarizes the freeway LOS. All of the Caltrans freeway merge,

¹ The Grant Line Road and Kiefer Boulevard intersection is the only intersection analyzed outside of the Urban Services Boundary. Because it borders the City of Rancho Cordova it is analyzed according to the City's criteria.

diverge, and weaving areas meet the LOS “E” standard with the exception of the Mather Field Road Off-Ramp, which operates at LOS “F”.

3.9.2.3 Baseline Operating Conditions

Baseline Roadways

Baseline traffic volumes were developed to reflect roadway extensions either currently under construction or expected to be completed prior to construction of any alternative on the project site. The Baseline Conditions roadways are the same as those shown in **Figure 3.9-1**.

Sacramento County Intersections

During the a.m. and p.m. peak hours, all of the Sacramento County intersections in the study area meet the Level of Service (LOS) "E" standard within the Urban Service Boundary and the Level of Service (LOS) "D" standard outside the boundary with the exception of the Grant Line Road and White Rock Road intersection which operates at LOS “F”.

City of Rancho Cordova Intersections

During the a.m. and p.m. peak hours, all of the City of Rancho Cordova intersections in the study area meet the Level of Service (LOS) "D" standard with the exception of the following intersections: Sunrise Boulevard and SR-16 (operates at LOS “E”); Grant Line Road and SR-16 (operates at LOS “F”).

Caltrans State Highway Intersections

During the a.m. and p.m. peak hours, all of the Caltrans State Highway intersections in the study area meet the LOS "E" standard.

Sacramento County Roadway Segments

All of the Sacramento County roadway segments in the study area meet the LOS "E" standard within the Urban Service Boundary and the LOS "D" standard outside the boundary, with the exception of Bradshaw Rd, from Old Placerville Road to Kiefer Boulevard, which operates at LOS “F”.

City of Rancho Cordova Roadway Segments

All of the City of Rancho Cordova roadway segments in the study area meet the Level of Service (LOS) "D" standard with the following exceptions: Bradshaw Road from US-50 to Old Placerville Road (operates at LOS “F”); Old Placerville Road from Bradshaw Road to Router Road (operates at LOS “F”); Sunrise Boulevard from Kiefer Boulevard to SR-16 (operates at LOS “E”).

Caltrans Freeway Mainline

All of the Caltrans freeway segments in the study area meet the LOS “E” standard.

Caltrans Freeway Merge, Diverge, and Weaving Areas

All of the Caltrans freeway merge, diverge, and weaving areas in the study area meet the LOS “E” standard with the exception of the Mather Field Road Off-Ramp, which operates at LOS “F”.

3.9.3 Regulatory Setting

3.9.3.1 State

California Department of Transportation Standards

Caltrans policies are applicable to all alternatives under consideration and are summarized in Caltrans’ Guide for the Preparation of Traffic Impact Studies (Caltrans, 2002). These guidelines identify circumstances under which Caltrans believes that a traffic impact study would be required, information that Caltrans believes should be included in the study, analysis scenarios, and guidance on acceptable analysis methodologies.

The standards for Caltrans’ facilities in the study area are detailed in the U.S. 50 Corridor System Management Plan and the SR-16 Route Concept Report. The 20-Year Concept LOS for U.S. 50 in the study area is LOS F, because actions necessary to improve the LOS to E are not feasible due to environmental, right-of-way, financial, and other constraints. For SR-16, LOS E is considered the minimum acceptable operating condition.

References

Caltrans, 2002. Guide for the Preparation of Traffic Impact Studies. December 2002.

DKS Associates, 2010. Mather Specific Plan Transportation Analysis. Sacramento, California. December 2010. Available for review in Appendix E of this EIS.

Transportation Research Board, 2000. Highway Capacity Manual. Special Report No. 209. Washington, D.C.

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3.10 Land Use and Agriculture

This section describes the current land uses within and adjacent to the project site. Agricultural land uses and production in the vicinity of the project site, including relevant policies governing agricultural conservation, are also discussed.

3.10.1 Existing Setting

3.10.1.1 Project Site Land Uses

Over 2,000 acres have been developed previously within the project site. These uses include Mather Airport, a commerce center and various other uses north of the airport runway, Federal Aviation Administration's Northern California Terminal Radar Control (TRACON) facility, Mather Regional Park, and Independence at Mather, a residential development of single-family homes. The site is zoned Special Planning Area and Multiple Zoning Designation.

Mather Airport comprises approximately 2,875 acres within the northwest portions of the project site. The airport includes two parallel runways, one of which is 11,300 feet long and 300 feet wide and the other is 6,100 feet long and 150 feet wide. Mather Airport includes 40 acres of cargo ramp space and 321,000 square feet of warehouse space.

North of the airport runway are various government and commercial facilities, the majority of which were constructed when the site was an active Air Force Base (AFB). This area includes Mather Commerce Center with office space, industrial space, medical facilities, and education and retail space. The area includes the U.S. Department of Veteran Affairs (VA) Medical Center, which was converted from the former U.S. Air Force Hospital, as well as County of Sacramento offices.

Within the eastern portion of the project site are approximately 1,432 acres associated with Mather Regional Park, which includes Mather Lake and a public golf course. Near the center of the project site is Independence at Mather, a modern residential housing subdivision which was developed from former AFB housing. Independence at Mather is approximately 320 acres and includes 1,271 single-family homes. The remainder of the project site is currently undeveloped.

3.10.1.2 Adjacent Land Uses

The project site is generally bounded by Mather Road to the north, the Folsom South Canal to the east, Kiefer Boulevard to the south, and Old Placerville Road/Happy Lane to the west. Land uses east of the project site include industrial land uses (several businesses associated with automotive parts recycling), residential development (Sunridge Specific Plan, including the Anatolia subdivision) and open space. Areas south of the project site are primarily open space, including land previously mined for aggregate resources, with scattered industrial and commercial uses. South of the eastern portion of the project site is the Sacramento Rendering Company plant. Triangle Rock Products, which sells aggregate materials, is located just over a mile south of the rendering plant.

The Sacramento Raceway Park is located approximately half a mile south of the central portion of the project site. Land uses immediately west of the project site include a Granite Construction aggregate processing and sales facility and various commercial and industrial uses (automotive dismantling and automotive repair facilities). Both Countryside and Lincoln Village residential subdivisions are located just northwest of the project site. Immediately north of the project site are various commercial and industrial uses, as well as the Villages of Zinfandel residential development.

3.10.1.3 Agricultural Resources

Table 3.10-1, below, identifies the land classifications provided in the Farmland Mapping and Monitoring Program. There are no identified important farmlands on the project site. No Williamson Act Lands have been identified on the project site (California DOC, 2009).

**TABLE 3.10-1
FMMP CLASSIFICATIONS FOR THE PROJECT SITE**

FMMP Classification	Area (acres)
Prime Farmland	0.00
Unique Farmland	0.00
Farmland of State Importance	0.00
Farmland of Local Importance	0.00
Grazing Land	3387.09
Urban and Built Up Land	1922.84
Other Land	370.62
Water	67.80

SOURCE: California DOC, 2006

3.10.2 Regulatory Setting

3.10.2.1 Federal

Farmland Protection Policy Act

The purpose of the Farmland Protection Policy Act (FPPA; 7 U.S.C § 4201) is to minimize the impact of federal programs on unnecessary conversion of farmland to non-agricultural uses. As discussed in the Final EIS for Disposal and Reuse of Mather Air Force Base, it was determined that the project site did not contain prime, unique, statewide or locally-important farmland under the FPPA criteria and thus the FPPA did not apply (U.S. Air Force, 1992). Additionally, federal permitting (such as authorization from the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act) does not qualify as a federal program and thus does not trigger a separate analysis.

Federal Aviation Regulation Part 77

The Federal Aviation Administration (FAA) is responsible for establishing policies and regulations to ensure the safety of the traveling public. Federal Aviation Regulation (FAR) Part 77 establishes standards and notification requirements for objects affecting navigable airspace. Notification allows

the FAA to identify potential aeronautical hazards and prevent or minimize adverse impacts to the safe and efficient use of navigable airspace. The FAA must be notified of any construction or alteration within 10,000 feet of a public use airport which exceeds a 50:1 surface from any point on the runway.

References

Department of Conservation (DOC), 2006. Farmland Mapping and Monitoring Program, Sacramento.

Department of Conservation (DOC), 2009. Sacramento County Williamson Act Lands 2009.

Available online at:

ftp://ftp.consrv.ca.gov/pub/dlrp/wa/Map%20and%20PDF/Sacramento/SacramentoWA_09_10.pdf. Dated November 2, 2009.

U.S. Air Force, 1992. Disposal and Reuse of Mather Air Force Base, Final Environmental Impact Statement. April 1992.

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3.11 Public Services, Utilities and Recreation

This section identifies the affected environment and regulatory setting for public services and utilities in the project area. The topics addressed include water, wastewater, solid waste, electricity, natural gas, telecommunications, law enforcement, fire protection/emergency medical services, public schools, and parks/recreation.

3.11.1 Existing Setting

3.11.1.1 Water

The project site is located in Sacramento County Water Agency's (SCWA's) Zone 40 within the North Service Area (NSA). The NSA includes Mather, the Sunrise Corridor, the Sunrise Douglas Community Plan Area and the Rio del Oro Specific Plan Area. Zone 40 is a benefit zone with the purpose of "the acquisition, construction, maintenance and operation of facilities for the production, conservation, transmittal, distribution and sale of ground or surface water or both for the present and future beneficial use of the lands or inhabitants within the zone" (SCWA, 2005a). Once water service begins, Zone 41 is the retail water supplier which is designated to provide potable water to developments in Zone 40. Zone 41 revenues are collected through utility charges, connection permit fees, construction water permits, and grants. These revenues are expected to fund water supply capital facilities replacement design and construction and water supply facilities operations, maintenance and administration (SCWA, 2005b).

The Independence at Mather housing area, the commercial development north of the airport and the airport facilities receive water from SCWA through an existing distribution system. Water is supplied from the water treatment plant within the Independence at Mather residential development which includes two groundwater wells, a six million gallon per day (MGD) water treatment plant (WTP) and a 0.5 MG storage tank. The existing water system was originally built by the Air Force to supply water to base housing. Additionally, there are two storage tanks, with a capacity of 0.3 MG and 0.5 MG, within the commercial development north of the airport.

It is anticipated that future development within the project site, if authorized, would receive water from the existing treatment plant, with additional supplies from the Anatolia WTP and/or Vineyard Surface Water Treatment Plant (SCWA, 2006). The Anatolia Groundwater Treatment Plant was constructed in 2005 to provide treated groundwater for the Sunridge Specific Plan Area. Three wells from the North Vineyard Well Field currently provide up to 4.3 MGD through a seven-mile long 30-inch diameter raw water pipeline. Four additional wells are anticipated to expand capacity to 13 MGD as needed. The first phase of the Vineyard Surface WTP was completed in 2011 and provides a capacity of 50 MGD. The second phase is anticipated to be completed in 2022 and will increase the capacity to 100 MGD.

3.11.1.2 Wastewater

Sacramento Regional County Sanitation District (SRCSD) and the Sacramento Area Sewer District (SASD formerly known as County Sanitation District 1 or CSD-1) currently serve the project site.

SRCSO is responsible for major conveyance (such as interceptors), wastewater treatment and wastewater disposal for SASD and the cities of Sacramento, West Sacramento and Folsom. SASD is a local sewer utility which owns and operates lower lateral pipes, main line pipes and pumping stations. SASD provides service to the following areas: unincorporated areas of Sacramento County; the cities of Citrus Heights, Rancho Cordova, and Elk Grove; and portions of the cities of Folsom and Sacramento.

The SRCSD Interceptor Master Plan 2000 planned 120 miles of new interceptor pipelines for completion by 2020. SRCSD has completed over 60 miles of interceptor sewer envisioned in the Master Plan (SRCSD, 2009). The western portion of the project site is within the BR71 Bradshaw Interceptor Basin while the eastern portion is within the MA12 Mather Interceptor Basin.

SRCSO interceptors convey wastewater to the Sacramento Regional Wastewater Treatment Plant (SRWTP), which is located in Elk Grove. SRWTP provides secondary treatment of wastewater which is then discharged to the Sacramento River under the terms of a National Pollutant Discharge Elimination System (NPDES) permit. SRWTP treats approximately 150 MGD with a peak wet weather capacity of 400 MGD (SRCSD, 2009). The projected average dry weather flow in 2020 is 218 MGD (SRCSD, 2008).

There are existing collector and trunk sewer lines within the project site which provide service to Independence at Mather, Mather Airport and the commerce center north of the airport. The Bradshaw Interceptor is located just north of Mather Airport. The Mather Interceptor is anticipated to eventually serve the eastern portion of the project site (SRCSD, 2000).

3.11.1.3 Solid Waste

Solid waste and recycling collection is provided to existing development within the project site. Waste is transported to the Kiefer Landfill located near the intersection of Grant Line Road and Kiefer Boulevard, or to a transfer station located near the intersection of Fruitridge Road and Florin Road.

The landfill comprises 1,084 acres, of which 250 acres are currently used. The landfill is permitted to use 660 acres for disposal. At present, the Kiefer Landfill is permitted to accept a maximum of 10,815 tons per day (tpd) of solid waste; however, the average intake is approximately 6,000 tpd. The estimated life expectancy of the landfill is 2035; however, at current usage rates the landfill is anticipated to last until 2064 (CalRecycle, 2010).

3.11.1.4 Electricity, Natural Gas, Telecommunications

Electrical service is provided to existing development on the project site by Sacramento Municipal Utility District (SMUD). SMUD generates, transmits and distributes electric power to a 900-square mile service area including Sacramento County and a portion of Placer County. SMUD gets its electricity from diverse resources, including: hydro generation; cogeneration plants; advanced and renewable technologies such as wind, solar, and biomass/landfill gas power; and power purchased on the wholesale market (Sacramento County, 2009). Natural gas service is provided by West

Coast Gas. AT&T which provides telecommunications has existing underground and overhead lines which serve the project site.

3.11.1.5 Law Enforcement

Sacramento County Sheriff's Department (SCSD) services the project site. Local police services include: response to calls and trouble spots, investigations, surveillance, and routine patrolling. Specialized law enforcement services include: providing court security services, operating a system of jails for pre-trial and sentenced inmates, and operating a training complex (Sacramento County, 2009).

The SCSD has over 2,000 paid personnel including over 1,700 officers and 500 non-sworn staff. The SCSD also has a reserve force of over 160 officers and roughly 620 volunteers. The nearest substation to the project site is the East Division located at 10361 Rockingham Drive on the northern boundary of the project site. The East Division provides patrol services to the project site (Sacramento County Sheriff's Department, 2010).

3.11.1.6 Fire Protection and Emergency Medical Services

The Sacramento Metropolitan Fire District (SMFD) provides fire protection, fire suppression, inspection, plan checking, emergency transportation and medical services, advanced life support, and rescue services to the project site. SMFD currently operates 39 career-staffed stations, two volunteer-staffed stations and one helicopter station and provides service to over 640,000 people (SMFD, 2012). The nearest stations which would serve the project site include 1) Station 62 at 3646 Bradshaw Road in Sacramento, west of the project site and 2) Station 66 at 3180 Kilgore Road in Rancho Cordova, north of the project site.

3.11.1.7 Schools

The project site spans the Sacramento City Unified, Elk Grove Unified and Folsom/Cordova Unified school districts. The only portion of the project site within the Sacramento City Unified school district is the airport which does not include housing. Independence at Mather as well as most of the project site is located within the Folsom/Cordova Unified District. A strip of land on the eastern portion of the project site is located within the Elk Grove Unified School District. Mather Heights Elementary School and the Mather Youth Academy and Youth Opportunity Program Kitty Hawk Campus are located within the project site in the existing residential area.

3.11.1.8 Parks and Recreation

The project site is located within the Cordova Recreation and Park District (CRPD) which encompasses 75 square miles (Cordova Recreation and Park District, 2010). The CRPD administers the Mather Sports Complex located within the project site, north of Mather Airport at 3755 Schriever Avenue. Services include fitness classes, open gym, racquetball courts, walking/jogging trail and weight rooms. Regional park facilities within the project site include Mather Regional Park, which includes Mather Golf Course and Mather Lake. Allowed activities include golfing, picnicking and fishing.

References

- CalRecycle, 2010. Solid Waste Information System (SWIS) Facility/Site Summary Details for the Sacramento County Landfill (Kiefer). Available online at: <http://www.calrecycle.ca.gov/SWFacilities/Directory/34-AA-0001/Detail/>. Last accessed June 4, 2012.
- Cordova Recreation and Parks District (CRPD), 2010. General Park Information. Available online at: <http://www.crpdp.com/index.php>. Last accessed June 4, 2012.
- Sacramento County, 2009. Sacramento County General Plan Update Draft Environmental Impact Report.
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- SCWA, 2005b, Zone 41 Urban Water Management Plan. December 2005. Available online at: http://www.msa.saccounty.net/waterresources/files/Water/UWMP_master_20060105_revised.pdf. Last accessed June 4, 2012.
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- SRCSD, 2009. SRCSD 2009 Information Sheets. Available online at: <http://www.srcsd.com/pdf/infosheets2009.pdf>. Last accessed June 4, 2012.

3.12 Hazards and Hazardous Materials

This section addresses the existing setting relevant to hazards and hazardous materials associated with historic and current uses of the project site and vicinity. This includes the results of environmental database records searches conducted for the project area. Information in this section is also based on review of Environmental Data Resources (EDR) reports for the project site prepared in 2009 and 2010.

3.12.1 Existing Setting

3.12.1.1 Historic Land Uses

The primary historic use of the project site is associated with the former Mather Air Force Base (AFB). Additional description of the historic uses associated with Mather AFB is included in **Section 1.3.1**. In summary, Mather AFB was used at various times from 1918 to 1993 by the Air Force and the airfield was reopened as a civilian airport in 1995. AFB housing was also developed, then that portion of the project site was redeveloped as the existing Independence at Mather housing development. Historical uses were verified through the use of historic aerial and topographic photos (EDR, 2009 and 2010).

3.12.1.2 Current Land Uses

Existing uses are summarized in **Section 1.3.2** and shown on **Figure 1-2**. Developed areas occupy over 2,000 acres of the project site. Major uses include Mather Airport, a commerce center and various other uses north of the airport runway, Federal Aviation Administration's Northern California Terminal Radar Control (TRACON) facility, Mather Regional Park, and Independence at Mather.

On-Site Wells

According to the Mather AFB Disposal and Reuse Final Environmental Impact Statement (FEIS), the project site contains 10 potable water wells. These wells are located throughout the main base, housing, and Strategic Air Command (SAC)/K-9 areas. Two non-potable wells provide landscaping water for the golf course (U.S. Air Force, 1992).

Pole-Mounted Transformers

Before 1975, polychlorinated biphenyls (PCBs) were commonly used in transformers, capacitors, and fluorescent light ballasts. In 1975, when it was demonstrated that PCBs were highly toxic to human beings and animals, the U.S. Environmental Protection Agency (EPA) banned the manufacture and use of PCBs. Numerous power poles are located on the project site including some with canister-style transformers which may contain PCBs.

High-Voltage Electrical Transmission Lines

Standard 65 kilovolt (kV) electric transmission lines traverse the project site in the western and northern portions of the site. Electric and magnetic fields (EMFs) are energy fields that surround electrical transmission lines. Some epidemiological and laboratory studies have identified EMF as

a possible cause of cancer although no studies have established a definitive cause-effect relationship. There are no federal standards limiting occupational or residential exposure to power line EMFs (U.S. EPA, 2010a).

Asbestos-Containing Materials

Asbestos is a naturally occurring mineral that can be hazardous to human health if it becomes airborne. Some of the diseases associated with asbestos exposure include lung cancer, mesothelioma, and asbestosis. Asbestos was previously used and stored at Mather AFB. A major base-wide asbestos survey was completed in 1990; results of the survey indicated that asbestos was prevalent in Mather AFB buildings. Asbestos was found in various types of uses including but not limited to piping insulation, floor tiles, and ceiling material (U.S. Air Force, 1992). Asbestos was managed consistent with the Air Force policy for closing bases, which includes removal or control if it is in a location and condition that constitutes a health hazard or is otherwise required by law (e.g. schools).

Lead-Based Paint

Human exposure to lead has been determined to result in adverse health risks. Exposure to lead can cause severe adverse health effects, especially in children. Although no comprehensive lead-based paint surveys have been conducted on buildings located throughout the former AFB, it is assumed that lead-based paint is likely present on or within structures that were constructed prior to or during 1978 when EPA banned lead-based paint.

3.12.1.3 Wildland Fires

Sacramento County is less vulnerable to wildland fire threats than surrounding counties with sparse and/or hillside development (Sacramento County, 2011). The developed and disturbed portions of the project site and surrounding areas are characterized by little to no threat of wildland fire; however, open space areas on the project site and in the project vicinity are considered high wildland fire risks (CAL FIRE, 2004).

3.12.1.4 Installation Restoration Program

In 1980, the U.S. Air Force developed the Installation Restoration Program (IRP) to identify, characterize, and remediate soil and groundwater contamination at military installations across the United States. According to the Mather AFB Disposal and Reuse FEIS, 69 IRP sites were identified on Mather AFB property (U.S. Air Force, 1992). The sources of contamination on the IRP sites were primarily associated with maintenance and refueling of aircraft and ground support equipment, fire protection training, corrosion control, and past disposal actions. The types of contaminants that have been identified include solvents, petroleum products, and various solid wastes. The IRP sites include landfills, fire training areas, drainage ditches, septic tanks, portions of the sanitary sewer system, chemical disposal areas, fuel spills and leaks, and former underground storage tanks (USTs). The IRP sites are in varying stages of cleanup, with many areas having completed cleanup activities (U.S. EPA, 2010b).

3.12.1.5 Agency Database Review

A regulatory agency database search was conducted in order to identify potentially hazardous conditions on or near the project site.

On-Site Contamination

As discussed above, 69 IRP sites are associated with Mather AFB including sites with soil and groundwater contamination. Soil and groundwater have been contaminated with volatile organic compounds (VOCs), mainly trichloroethylene (TCE) and tetrachloroethylene (PCE), and hydrocarbons associated with fuels (DTSC, 2010). For the most part, potential exposure to contaminated soils has been eliminated through excavation and treatment of soils though some IRP sites are still under active remediation. Providing an alternate water supply to affected residents and installing wellhead treatment on municipal supply wells has reduced the potential of exposure to contaminated drinking water (U.S. EPA, 2010b).

Five groundwater contamination plumes have been identified beneath the project site. All plumes are actively monitored with groundwater monitoring wells and are subject to a range of remedial actions. One of the groundwater plumes is in the Aircraft Control and Warning (AC&W) Disposal Area, located on the east-central part of the project site between Independence at Mather and the aircraft alert apron. The AC&W groundwater plume contains TCE. The plume has undergone pump and treat remedial actions since December 1994.

The Site 7 plume begins at the southern edge of Mather AFB and extends off-base. The remedial action for this plume includes groundwater extraction, air stripping with off-gas treatment as necessary, reinjection and land use restrictions. Groundwater extraction wells have been operating since 1998 with some interruption from off-site aggregate mining activities.

A plume in the northeast portion of the project site (northeast plume) contains low concentrations of chlorinated solvents and is believed to be associated with two closed landfill sites in the plume area. No active remediation has been proposed for this area although it is controlled by land use restrictions and institutional controls are proposed.

The Main Base/SAC Area plume in the western portion of the project site, is comprised of two plumes that have commingled and migrated over a mile from Mather AFB. The remedial action for this plume includes groundwater extraction, air stripping with off-gas treatment as necessary, reinjection and land use restrictions. Groundwater extraction wells have been operating since April 1998.

Off-Site Contamination

The Aerojet General Corporation (Aerojet) Superfund site is located northeast of the project site and covers approximately 5,900 acres near Rancho Cordova, California (U.S. EPA, 2010b). Since 1953, Aerojet and its subsidiaries have manufactured liquid and solid propellant rocket engines for military and commercial applications and have formulated a number of chemicals, including rocket propellant agents, agricultural, pharmaceutical, and other industrial chemicals. In addition, the Cordova Chemical Company operated chemical manufacturing facilities on the Aerojet complex from

1974 to 1979. Both companies disposed of unknown quantities of hazardous waste, including TCE and other chemicals associated with rocket propellants, as well as various chemical processing wastes. Public and private drinking water supply wells have been contaminated with VOCs and perchlorate and wells contaminated above acceptable levels have been closed. Aerojet continues to monitor drinking water supplies to assure compliance with drinking water standards. There are five interim groundwater extraction and treatment systems in operation at the Aerojet General facility which provide monitored boundary control of groundwater contaminants (DTSC, 2010). The project site is located outside of the extent of contamination from the nearest plume associated with Aerojet activities (U.S. EPA, 2010c).

3.12.2 Regulatory Setting

3.12.2.1 Federal

U.S. Environmental Protection Agency (EPA)

U.S. EPA is the agency responsible for enforcement and implementation of several federal laws and regulations pertaining to hazardous materials. Applicable federal regulations pertaining to hazardous materials are contained in the Code of Federal Regulations (CFR) Titles 29, 40, and 49. Hazardous materials, as defined in the CFR, are listed in 49 CFR §172.101. The following laws govern management of hazardous materials:

- Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA, also called the Superfund Act) (42 U.S. Code [USC] §9601 et seq.); and
- Superfund Amendments and Reauthorization Act (SARA) of 1986 (Public Law 99-499)
- Resource Conservation and Recovery Act of 1976 (RCRA) (42 USC §6901 et seq.);

Comprehensive Environmental Response, Compensation and Liability Act (Superfund) and Amendments

Superfund is the name given to the environmental program established by CERCLA of 1980, to address releases of hazardous substances, including abandoned hazardous waste sites. It allows the U.S. EPA to clean up such sites and to compel responsible parties to perform cleanups or reimburse the government for U.S. EPA-lead cleanups. The project site contains the AC&W Disposal Area which is a Superfund site. The nearest off-site Superfund site is the Aerojet site located northeast of the project site.

Resource Conservation and Recovery Act

Under RCRA, U.S. EPA regulates hazardous waste from the time that the waste is generated until its final disposal. The RCRA also gives U.S. EPA or an authorized state the authority to conduct inspections to ensure that facilities are in compliance with regulations and to pursue enforcement actions if a violation is discovered. The U.S. EPA delegated its RCRA authority to DTSC for the issuance of hazardous waste disposal permits.

Federal Insecticide, Fungicide, and Rodenticide Act

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) (7 USC §136 et seq.) provides federal control of pesticide distribution, sale, and use. The U.S. EPA was given authority under

FIFRA to register (license) all pesticides used in the United States. Registration ensures that pesticides will be properly labeled and that if used in accordance with specifications, they will not cause unreasonable harm to the environment. FIFRA require users to register when purchasing pesticides. Later amendments require users to take exams for certification to apply pesticides.

Toxic Substances Control Act

The Toxic Substances Control Act of 1976 (15 USC §2605) banned the manufacture, processing, distribution, and use of Polychlorinated Biphenyl or PCBs in any manner other than a totally enclosed manner. PCBs are considered hazardous materials because of their toxicity; they have been shown to cause cancer in animals, as well as affect the immune, reproductive, nervous, and endocrine systems. The U.S. EPA Region 9 PCB Program oversees remediation activities of PCBs in California. 40 CFR §761.30(a)(1)(vi)(A) states that all owners of electrical transformers containing PCBs must register their transformers with U.S. EPA. The manufacturer must mark specified electrical equipment that it manufactured between July 1, 1978, and July 1, 1998, that does not contain PCBs with the statement “No PCBs” (Section 761.40[g]). Transformers and other items manufactured before July 1, 1978, containing PCBs must be marked as such.

Occupational Health and Safety Administration

The Occupational Safety and Health Administration (OSHA) of the U.S. Department of Labor is responsible for enforcing and implementing federal laws and regulations pertaining to worker health and safety. The California Department of Industrial Relations, Division of Occupational Safety and Health Administration (Cal/OSHA) assumes primary responsibility for developing and enforcing work place safety regulations within the State.

References

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3.13 Noise

This section addresses the existing noise setting for the project site and vicinity. Relevant regulations and policies that address noise control and abatement are also discussed.

3.13.1 Existing Setting

3.13.1.1 Sensitive Receptors

Some land uses are considered more sensitive to ambient noise levels than others, due to the amount of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities typically involved. Residences, motels and hotels, schools, libraries, churches, hospitals, nursing homes, auditoriums, parks, and other outdoor recreation areas generally are more sensitive to noise than are commercial (other than lodging facilities) and industrial land uses. Within the project site there are the residences and a school at the existing Independence at Mather housing community as well as the Veterans Affairs Medical Center in the existing commerce area. The nearest off-site sensitive receptors are the Anatolia housing community on the east side of Sunrise Boulevard and residential development to the north of Old Placerville Road. The Anatolia housing community is currently subject to traffic noise from Sunrise Boulevard and is bordered by a sound wall approximately 10 feet high.

3.13.1.2 Ambient-Noise Survey

The noise environment surrounding the site is influenced primarily by automobile traffic on Sunrise Boulevard and the surrounding roadway network. Airport noise is intermittent. To quantify the existing noise environment, eight sites on and around the project site were evaluated using short term (ST) 5-minute noise level measurements. All noise measurements were collected using calibrated sound level meters. The location of the noise measurements are shown in **Figure 3.13-1**. Noise measurement results are shown in **Table 3.13-1**. Appendix A, Acronyms and Abbreviations provides definitions for noise terms including Leq, and dBA.

**TABLE 3.13 -1
NOISE MEASUREMENTS NEAR THE PROJECT SITE**

Location	Time Period	Leq (decibels)*	Noise Sources
ST-1: 50 feet from center of Hwy 16 and Eagles Nest Road.	Wednesday 12/16/09 3:46 – 3:56 PM	5-minute Average Noise Level, Leq 75, 76	Traffic noise Semi truck, 84 dBA
	Thursday 12/17/09 8:20 – 8:30 AM	5-minute Average Noise Level, Leq 75, 76	Traffic noise Semi, 87 dBA Trash truck, 89 dBA
ST-2: 50 feet from center of Sunrise and Bosphorus	Wednesday 12/16/09 4:26 – 4:36 PM	5-minute Average Noise Level, Leq 73, 74	Traffic noise Semi, 86 dBA
	Thursday 12/17/09 8:44 – 8:54 AM	5-minute Average Noise Level, Leq 77, 76	Traffic noise Semi, 87 dBA.

**TABLE 3.13 -1
NOISE MEASUREMENTS NEAR THE PROJECT SITE**

Location	Time Period	Leq (decibels)*	Noise Sources
ST-3: 50 feet from center of Eagles Nest Road and Kiefer Blvd.	Wednesday 12/16/09 4:05 – 4:15 PM	5-minute Average Noise Level, Leq 52, 56	Very little traffic, airplane background noise Pickup, 66 dBA
ST-4: 1000 feet north of Kiefer on Eagles Nest (dirt) Road	Thursday 12/17/09 9:06 – 9:16 AM	5-minute Average Noise Level, Leq 44, 44	Gunfire from shooting club at 11551 Douglas Road, 53 dBA Airplane, 51 dBA
ST-5: Eagles Nest Road at turnout	Wednesday 12/16/09 4:51 – 5:01 PM	5-minute Average Noise Level, Leq 54, 43	Car approaching, 60 dBA Firecrackers, 44 dBA Airplane at Mather, 44 dBA
ST-6: 50 from center of Eagles Nest Road and Douglas Rd.	Thursday 12/17/09 7:15 – 7:25 AM	5-minute Average Noise Level, Leq 63, 64	Pickup truck, 74 dBA Car, 75 dBA
ST-7: 50 ft from center of Woodring Ave.	Thursday 12/17/09 7:34 – 7:44 AM	5-minute Average Noise Level, Leq 67, 53	Car, 86 dBA Flock of birds, 50 dBA
ST-8: 50 feet from center of Excelsior Rd. at turnout	Thursday 12/17/09 7:54 – 8:04 AM	5-minute Average Noise Level, Leq 69, 67	Bus, 84 dBA Car, 76 dBA

* Two meters are set at each location and Leq for both meters is shown.

SOURCE: ESA, 2009.

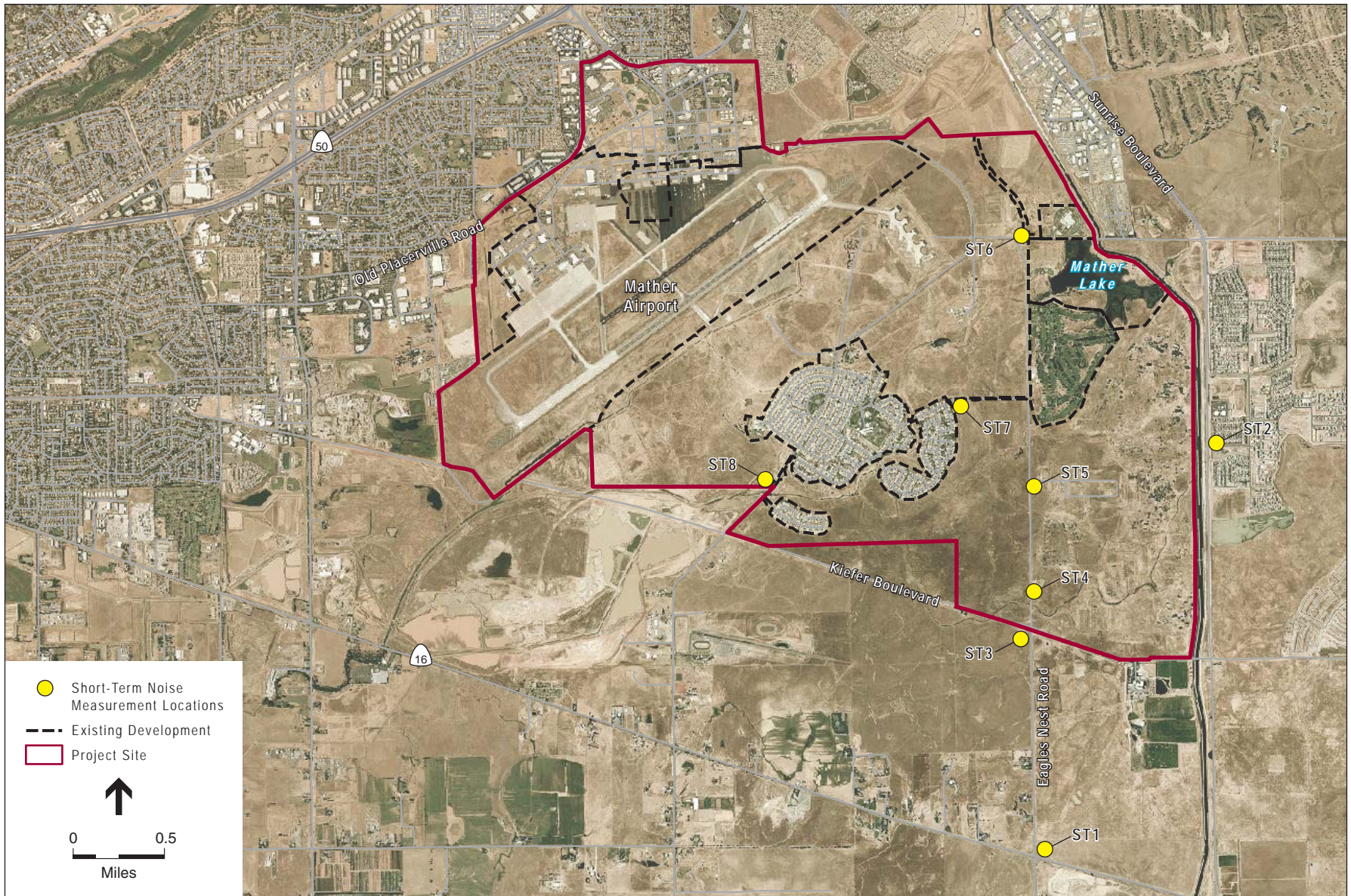
3.13.2 Regulatory Setting

3.13.2.1 Federal

Noise criteria used in this study include the Federal Highway Administration (FHWA) Noise Abatement Criteria for the assessment of noise consequences related to surface traffic. In addition, environmental consequences are also evaluated relative to the change in ambient noise conditions at existing noise-sensitive uses in the project vicinity which would result from the project. These criteria are discussed below.

The Code of Federal Regulations (CFR), Title 14, Part 150, Table 1 entitled “Land Use Compatibility with Yearly Day-Night Average Sound Levels,” provides a standard reference for land uses compatible with various levels of airport noise, and contains the basic criteria used in preparing Part 150 programs. This is the only noise and land use compatibility table currently in the Code of Federal Regulations (FAR, 1983).

The FHWA establishes Noise Abatement Criteria (NAC) for various land uses which have been categorized based upon activity. Land uses are categorized on the basis of their sensitivity to noise, as indicated in **Table 3.13-2**. The **Table 3.13-2** standards which may be considered applicable to this project would be the 67 dB Leq exterior noise level standard for Residences and Motels (Category B), and the 52 dB interior noise level standard applied to those same uses under Category E. A substantial noise increase occurs when the project’s predicted worst-hour noise level exceeds the existing worst hour noise level by 12 dBA or more.



SOURCE: NAIP, 2009; and ESA, 2010

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Figure 3.13-1
Noise Monitoring Locations

**TABLE 3.13-2
FEDERAL NOISE ABATEMENT CRITERIA**

Activity Category	Leq (h), dBA	Activity Category Description
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	---	Undeveloped Lands.
E	52 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Hourly A-Weighted Sound Level--decibels (dBA)
SOURCE: Federal Highway Administration 23 CFR Part 772; Caltrans, 2006.

3.13.2.2 Local

Sacramento County General Plan Noise Element

The Sacramento County General Plan Noise Element (2011) establishes land use compatibility criteria for transportation noise and outlines acceptable noise levels for various land uses. Listed are the following General Plan Noise Element policies that are pertinent to development projects:

Policy NO-1. The noise level standards for noise-sensitive areas of *new* uses affected by traffic or railroad noise sources in Sacramento County are shown by Table 1. Where the noise level standards of Table 1 are predicted to be exceeded at new uses proposed within Sacramento County which are affected by traffic or railroad noise, appropriate noise mitigation measures shall be included in the project design to reduce projected noise levels to a state of compliance with the Table 1 standards.

Policy NO-5: Where a project would consist of or include non-transportation noise sources, the noise generation of those sources shall be mitigated so as not exceed the interior and exterior noise level standards of Table 2 [of the Noise Element] at existing noise-sensitive areas in the project vicinity.

Policy NO-6: Where a project would consist of or include non-transportation noise sources, the noise generation of those sources shall be mitigated so as not exceed the interior and exterior noise level standards of Table 2 [of the Noise Element] at existing noise-sensitive areas in the project vicinity.

Sacramento County Code

The Sacramento County code establishes exterior and interior noise standards that apply to all properties within a designated noise area. Chapter 6.68 of the Sacramento County Code describes standards specific to development projects, including exterior noise standards (as summarized in **Table 3.13-3**), interior noise standards, standards for equipment such as machinery and air conditioning, and exemptions.

**TABLE 3.13-3
EXTERIOR NOISE STANDARDS**

Zone	Time Period	Exterior Noise Standard (dBA)
All county zoning districts	7:00 a.m. – 10:00 p.m.	55
	10:00 p.m. – 7:00 a.m.	50

SOURCE: Sacramento County Code, 2010.

Mather Airport Land Use Compatibility Plan

The Airport Land Use Compatibility Plan for Mather Airport includes state mandated criteria deeming the following land uses to be incompatible within the 65 CNEL contour: residential dwellings, public and private schools, hospitals and convalescent homes, churches, synagogues, temples, and other places of worship (Airport Land Use Commission, 1997). The relevant Land Use Compatibility Guidelines are listed below in **Table 3.13-4**.

**TABLE 3.13-4
MATHER AIRPORT LAND USE COMPATIBILITY GUIDELINES**

Land Use Category	Compatibility With				
	60 – 65 CNEL	65 – 70 CNEL	70 – 75 CNEL	75 – 80 CNEL	80 – 85 CNEL
Residential ¹					
• Single family detached ² , two and multifamily, group quarters and rooming houses	Yes	No	No	No	No
Agriculture and Mining					
• Mining and Quarrying	Yes	Yes	Yes ³	Yes ³	Yes ³
Manufacturing	Yes	Yes	Yes ³	Yes ³	Yes ³
Retail Trade					
• Eating and Drinking	Yes	Yes	Yes ³	Yes ³	No
Recreation					
• Open Space and Natural Areas	Yes	Yes	Yes ³	Yes ³	Yes ³

1. Caretaker residences are a compatible use within all CNEL ranges, provided that they are ancillary to the primary use of a property, intended for the purpose of property protection or maintenance, and subject to the condition that all residential units be designed to limit intruding noise such that interior noise levels do not exceed 45 CNEL, with windows closed, in any habitable room.
2. Second residential units are a compatible use within all CNEL ranges, subject to the condition that the proposed second unit be consistent with the provision of Sections 65852.1 and 65852.2 of the California Government Code.
3. Measures to achieve an interior noise level of 50 CNEL must be incorporated into the design and construction of portions of buildings where the public is received, office areas and other areas where people work or congregate.

SOURCE: ALUC, 1997

The project site contains areas inside and outside the Mather Airport Planning Policy Area (MAPPA) as well as areas inside and outside of the 2001 CNEL noise exposure pattern (Sacramento County, 2003). The MAPPA guidelines prohibit new residential development within the CLUP 60 CNEL contour and require noise insulation to provide 45 CNEL interior, real estate disclosure statements, and aviation easements for residential development outside the 60 CNEL contour but within the MAPPA (Sacramento County, 2003).

References

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3.14 Aesthetics

This section provides a description of the visual, i.e., aesthetic resources for the project site and vicinity and the regulatory policies governing these resources.

3.14.1 Existing Setting

Visual resources are the natural and human-built features of the landscape that can be seen and that contribute to an attractive landscape appearance and the public's enjoyment of the environment. Viewer sensitivity or concern is based on the visibility of resources in the landscape, proximity of viewers to the visual resource, elevation of viewers relative to the visual resource, frequency and duration of view(s), and types and expectations of individuals and viewer groups. Generally, visual sensitivity increases with an increase in total numbers of viewers, frequency of viewing, and duration of views. Also, visual sensitivity is higher for views seen by people who are driving for pleasure; people engaging in recreational activities such as hiking, biking, or camping; and homeowners. Sensitivity tends to be lower for views seen by people driving to and from work or as part of their work. Views from recreation trails and areas, scenic highways, and scenic overlooks are generally assessed as having high visual sensitivity.

3.14.1.1 Regional Setting

Land uses to the west of the project site include a Granite Construction aggregate processing and sales facility and various commercial and industrial uses (automotive dismantling and automotive repair facilities). Both Countryside and Lincoln Village residential subdivisions are located just northwest of the project site. North and northeast of the project site are various commercial and industrial uses, as well as the Villages of Zinfandel residential development. Land uses east of the project site include industrial land uses, residential development (the Anatolia subdivision) and open space and agricultural areas. Areas south of the project site are primarily open space, including land previously mined for aggregate resources, with scattered industrial and commercial uses. Immediately north and east of the project site lies the City of Rancho Cordova.

3.14.1.2 Project Site Setting

Over 2,000 acres have been developed previously on the project site. The extent of existing facilities on the project site is described in **Section 1.3.2**. South of Mather Airport and surrounding Independence at Mather is open space that includes annual grasslands interspersed with vernal pool complexes. These areas provide wildflower viewing opportunities in the spring months which contribute to the overall visual character of the project site.

Views of the Project Site

The project site is visible from adjacent properties and roadways. Photographs were taken at various locations, as shown on **Figure 3.14-1**, to characterize existing views of the project site. The photographs are provided on **Figures 3.14-2** and **3.14-3**. From the north, the project site is visible from various residential and commercial land uses and along Old Placerville Road and

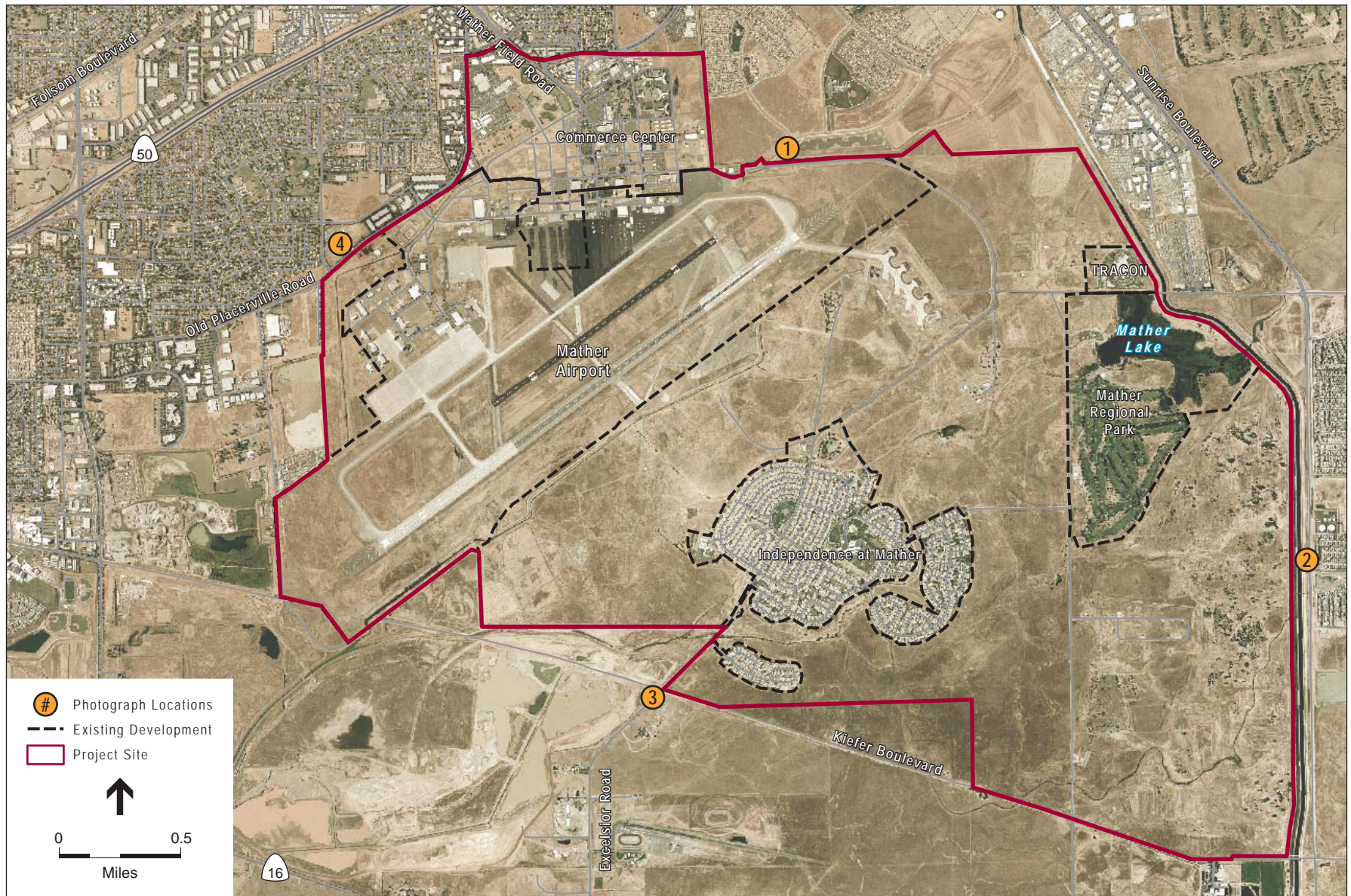
International Drive. The project site is visible from the east by businesses west of Sunrise Boulevard, residential development immediately east of Sunrise Boulevard and from Sunrise Boulevard by motorists traveling between Douglas Road and Kiefer Boulevard. Views of the project site from the south are somewhat limited due to the fact that Kiefer Boulevard is closed from Eagles Nest Road to Happy Lane. From the south, the project site is visible from Kiefer Boulevard for motorists east of Eagles Nest Road, the rendering plant on Kiefer Boulevard, and Excelsior Road for motorists traveling north towards Independence at Mather. From the west, the project site is visible from existing industrial and commercial land uses as well as by motorists traveling along Happy Lane.

Scenic Vistas

The project site is located in a largely developed industrial, commercial and residential area immediately south and west of the City of Rancho Cordova. There are no officially state-designated scenic vistas in the vicinity of the project site.

Light and Glare

Existing sources of light and glare on the project site include Mather Airport, the commerce center, and Independence at Mather. Additional sources of light and glare include adjacent industrial, commercial, and residential land uses. Light and glare in the project area are mostly from outdoor lamps in parking lots and from indoor/outdoor lights illuminating existing residences and businesses in the immediate area. Motorists traveling along local roadways, including Kiefer Boulevard and Sunrise Boulevard also contribute to nighttime sources of light and glare in the project area.



SOURCE: NAIP, 2009; and ESA, 2010

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Figure 3.14-1
Project Site Viewpoints



PHOTOGRAPH 1. Looking south from Mather Boulevard.



PHOTOGRAPH 2. Looking west from Sunrise Boulevard.



PHOTOGRAPH 3. Looking north from Excelsior Road.



PHOTOGRAPH 4. Looking southeast from Old Placerville Road.

CHAPTER 4.0

Environmental Consequences

4.1 Introduction

This chapter describes the environmental consequences that are expected to result from development of the Applicant's Preferred Project and alternatives. The analysis presented in this chapter has been prepared in accordance with the Council on Environmental Quality's (CEQ) National Environmental Policy Act (NEPA) Regulations (40 CFR §1502.16). The direct environmental effects of each alternative are provided for issue areas discussed in **Chapter 3.0**.

The Mather Specific Plan area includes 5,749 acres which is referred to throughout the EIS as the project site. The environmental consequences chapter uses the term "action area" to refer to the portions of the project site proposed for development or preservation under the alternatives described in this document. The action area includes the following land use areas: Airport Commercial, Commercial Development, Economic Development (aggregate extraction), University Village/Residential, Parks and Recreation, Regional Sports Park, Roadways/Infrastructure, Preserve and Riparian Buffer. Excluded from the action area are the 2,554 acres associated with existing uses which are not currently proposed for additional development or preservation. The action area thus excludes the following areas, the boundaries of which are also shown on **Figure 1-2**: Mather Airport, Commerce Center, Douglas-Zinfandel Extension, Mather Lake, Mather Regional Park (including golf course), TRACON and Independence at Mather.

4.1.1 Determination of Significance

The CEQ NEPA Regulations (40 CFR §1508.27) define significance of effects in terms of context and intensity. Context refers to society as whole, the affected region or interests, and the locality. Intensity refers to the severity of effect. The following were considered in evaluating intensity:

- Whether effects are beneficial or adverse
- Degree of public health or safety effects
- Unique resource characteristics of the geographic area
- Degree of controversy
- Uncertainty and unknown risks of effects
- Degree to which action may set a precedence

- Cumulative effects
- Effects on scientific, cultural, or historic resources
- Effects to endangered or threatened species or habitat(s)
- Violation of federal, state, or local environmental regulations

Mitigation measures are recommended where feasible for significant and adverse impacts. Each mitigation measure is numbered to correspond to an applicable impact. In some cases, a single mitigation measure is applicable to multiple impacts, and is cross referenced in the text.

4.1.2 Treatment of Alternatives

While each alternative is considered independently, a combined discussion is provided in those instances where potential impacts would be substantially similar to avoid redundancy and provide clarity for the reader.

Similarities between alternatives include the following:

- All alternatives (Alternatives A through D) address impacts from potential future development at the project site.
- Alternatives A through C consider development of a large-scale mixed-use development with the following land uses and development areas: Commercial Development, University Village/Residential, Parks and Recreation and Regional Sports Park uses, and associated infrastructure development. Alternatives A through D include areas which could be developed for airport commercial and aggregate extraction.
- For Alternatives A through C there are differences in the amount of area that would be developed; however, there is adequate area for the development of similar facilities within each area (**Table 2-2**). It is presumed that each alternative would be served by the same infrastructure facilities.

4.2 Geology, Soils and Mineral Resources

4.2.1 Alternative A – Applicant's Preferred Alternative

Impact 2.1: Erosion from Construction

Alternative A would result in substantial construction activity, such as soil removal, trenching, pipe installation, grading and revegetation, within the proposed development areas. Construction activities would result in the temporary disturbance of soil and could expose disturbed soils to winter storm events, which could lead to localized erosion. Soil disturbance could also occur during the summer months resulting in loss of topsoil from wind erosion. Erosion, if not managed or controlled, can result in soil loss and/or discharge of sediment into downstream drainage facilities or waterways. Erosion impacts to surface water are addressed in more detail under **Section 4.3**, Hydrology, Flooding and Water Quality.

As described in **Section 3.2.2**, construction sites disturbing one acre or more of land are subject to the permitting requirements of the National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Construction Permit). Construction associated with Alternative A would proceed under the requirements of the General Construction Permit, including the preparation of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP would include measures to minimize erosion and would identify pollutant sources that may affect the quality of stormwater discharges. Minimization measures would include the implementation of Best Management Practices (BMPs) to reduce pollutants in stormwater discharges during construction. Implementation of the SWPPP, associated BMPs and compliance with Sacramento County's Land Grading and Erosion Control Ordinance would result in a less-than-significant erosion impact from implementation of Alternative A.

Impact 2.2: Structural Damage from Seismic Activity and Related Geologic Hazards

The potential for surface rupture or groundshaking to cause damage to proposed structures is negligible. Compliance with the California Building Code (CBC) would require that seismic standards are incorporated into the design of all new buildings, roadways, utilities and other structures. Potential hazards associated with liquefaction would be negligible because the project site has a fairly deep groundwater table, soils at the project site are relatively stable, and potential sources of seismic activity are a relatively long distance away. Under Alternative A, potential damage to structures from seismic activity and related geologic hazards would be a less-than-significant impact.

Impact 2.3: Structural Damage from Expansive and Corrosive Soils

As identified in **Table 3.2-3**, the project site contains soils with shrink-swell properties. Expansion and contraction of these soils, depending on the season and the amount of surface water infiltration, could exert enough pressure on structures to result in cracking, settlement, or uplift.

Table 3.2-3 also lists a number of soils on the project site that have been identified as being corrosive to steel and concrete. These soils can damage underground utilities, including pipelines and cables, and weaken roadway structures if these facilities are unprotected, which would be a significant, adverse impact. With implementation of Mitigation Measure 2.3, the effects of expansive and corrosive soils can be reduced to less-than-significant levels.

Mitigation Measures

Measure 2.3: Geotechnical Study and Implementation of Recommendations.

Geotechnical and/or geologic studies for each development area would be prepared to identify the characteristics of soils prior to development of that area, including construction of any structures, utilities or roadways. Any recommendations identified by the geotechnical investigations would be incorporated into the design of the structures.

Impact 2.4: Loss of Mineral Resources

The action area has the potential to contain high quality aggregate resources as discussed in **Section 3.2**. Alternative A proposes development of Airport Commercial land uses within a portion of the MRZ-2 (significant mineral resources present or inferred) designated areas. Development of the Regional Sports Park and University Village/Residential uses are proposed within areas designated as MRZ-3 (mineral deposits present but unidentified significance). A portion of both the MRZ-2 and MRZ-3 areas are within the proposed Preserve. All of these areas would become unavailable for aggregate extraction. Extraction of aggregate resources is proposed within the Economic Development area which is designated as MRZ-2.

There is land in the vicinity of the action area with identified or inferred aggregate resources that could be further defined and developed. In addition, it is not guaranteed that significant mineral resources are present or that they can be extracted economically. Based on these factors, the potential loss of mineral resources under Alternative A is a less-than-significant impact.

4.2.2 Alternative B and Alternative C

The impacts and mitigation for Alternatives B and C are the same as those identified for Alternative A. **Section 4.1.2** explains the applicability of Alternative A impacts to Alternatives B and C.

4.2.3 Alternative D – No Permit Alternative

Impact 2.1: Erosion from Construction

Implementation of Alternative D could result in earth-moving activities in the economic development (aggregate extraction) and airport infill areas, which comprise approximately 123 acres. As described in **Section 3.2.2**, construction sites disturbing one acre or more of land are subject to the permitting requirements of the NPDES General Construction Permit. Implementation of a SWPPP, associated

BMPs and compliance with Sacramento County's Land Grading and Erosion Control Ordinance would result in a less-than-significant erosion impact from implementation of Alternative D.

Impact 2.2: Structural Damage from Seismic Activity and Related Geologic Hazards

As sources of seismic activity are located at a substantial distance (over 45 miles to the west) from the project site, the potential for surface rupture, damage from ground shaking and liquefaction are low. Thus, impacts would be less than significant.

Impact 2.3: Structural Damage from Expansive and Corrosive Soils

The project site contains soils with expansive properties and soils with risk of corrosion to steel and concrete. Impacts associated with the presence of expansive and corrosive soils are potentially significant and adverse. However, any future land use development would be subject to local ordinances and compliance with the California Environmental Quality Act, which would include requirements for a geotechnical study. A less-than-significant impact would result after implementation of recommendations of a geotechnical study.

Impact 2.4: Loss of Mineral Resources

Alternative D proposes development of Airport Commercial land uses within a portion of the MRZ-2 designated area. This area would become unavailable for aggregate extraction under Alternative D. Extraction of aggregate resources is proposed for the portion of the project site designated as "Economic Development" under Alternative D. There is land in the vicinity of the project site with identified or inferred aggregate resources that could be further defined and developed. In addition, it is not guaranteed that significant mineral resources are present or that they can be extracted economically. Based on these factors, the potential loss of mineral resources under Alternative D is a less-than-significant impact.

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4.3 Hydrology, Flooding and Water Quality

This section analyzes the potential effects of the alternatives on hydrology, including water quality from construction and operation, changes in drainage and flooding patterns, development within floodplains and interference with flood flows, potential for flooding due to dam failure, and depletion of groundwater. A separate discussion for aggregate extraction is included due to the potential for unique water quality impacts from this use.

4.3.1 Alternative A – Applicant's Preferred Alternative

Impact 3.1: Construction-Related Water Quality Degradation

Construction of Alternative A would involve the use of heavy equipment, such as bulldozers, graders, earth movers, heavy trucks, backhoes, and various other machinery for grading, trenching, laying of pipe, construction of roads, and installation of buildings and other proposed facilities. The use of these types of machinery could result in the release of water quality pollutants. Potential chemicals associated with machinery could include, but may not be limited to, fuels, oil, lubricants, antifreeze, hydraulic fluid, and cleaning solvents. The use of heavy machinery would also disturb surface soils. During storm events, stormwater could mobilize disturbed soils and/or release residual chemicals that could become entrained in stormwater runoff, and be transported into waterways on site, including Morrison Creek and other waterways downstream or offsite. As a result, water quality could be adversely affected in Morrison Creek, or in other waterways.

As a condition of construction permitting, the project proponent would be required to obtain an National Pollutant Discharge Elimination System (NPDES) General Construction Permit for Discharges of Stormwater Associated with Construction Activities (NPDES General Stormwater Permit), from the Central Valley Regional Water Quality Control Board (CVRWQCB). Permit requirements would include:

- Preparation of hazardous materials spill control and countermeasure programs;
- Stormwater quality sampling, monitoring, and compliance reporting;
- Development and adherence to a Rain Event Action Plan;
- Adherence to numeric action levels and effluent limits for pH and turbidity;
- Monitoring of soil characteristics on site;
- Mandatory training under a specific curriculum; and
- Mandatory implementation of Best Management Practices (BMP), which may include, but would not be limited to:
 - Physical barriers to prevent erosion and sedimentation including setbacks and buffers, rooftop and impervious surface disconnection, rain gardens and cisterns, and other installations;
 - Construction and maintenance of sedimentation basins;
 - Limitations on construction work during storm events;

- Use of swales, mechanical, or chemical means of stormwater treatment during construction, including vegetated swales, bioretention cells, chemical treatments, and mechanical stormwater filters; and
- Implementation of spill control, sediment control, and pollution control plans and training.

The specific BMPs to be implemented would be determined prior to issuance of the NPDES General Permit, in coordination with the CVRWQCB. Adherence to these BMPs would be required as a condition of the permit, and would substantially reduce or prevent soil or chemicals from entering waters. Additionally, all construction and development would be required to adhere to the stormwater quality management design standards set forth in the Stormwater Quality Design Manual for Sacramento and South Placer Regions. Implementation of these mandatory measures are expected to be adequate to ensure that stormwater quality is not degraded and therefore impacts would be less than significant.

Impact 3.2: Operation Period Water Quality Degradation

During the operational period for Alternative A, several factors could potentially contribute to reductions in water quality on the project site, including Morrison Creek and/or other waterways. These are as follows:

Stormwater quality of runoff from new impervious surfaces: During dry periods, parking lots, roads, roofs, and other impervious surfaces in urban areas collect dust and dirt, fuel, grease, oil, brake dust, trash, and other potential water quality pollutants. At the onset of wet weather, these pollutants can become entrained in stormwater, which flows to drainages, storm sewers, and waters downstream. Without proper stormwater control and stormwater quality management measures, pollutants can result in water quality degradation.

Public, commercial, and residential landscape management practices at the project site could also affect water quality. For instance, maintenance of existing or proposed landscaping in park, residential, and other landscaped areas would typically include the application of fertilizers, herbicides, and pesticides. Unless use and application of these chemicals is carefully managed, they could become entrained in stormwater and be discharged to waterways, causing water pollution in Morrison Creek and other waterways. However, as discussed above in **Impact 3.1**, adherence to the conditions of the NPDES General Permit for Stormwater and the requirements of the Stormwater Quality Design Manual for Sacramento and South Placer Regions would protect water quality by implementing best management practices and other operational period pollution control measures.

Wastewater discharge: Wastewater resulting from Alternative A would be piped to the Sacramento Regional County Sanitation District (SCRSD) Wastewater Treatment Plant (WWTP), located west of Elk Grove. Potential impacts regarding the availability of sufficient capacity at the WWTP, and other related infrastructure issues, are addressed in **Section 4.11**, Public Services and Utilities. The quality of effluent discharge from the SRCSD WWTP is carefully regulated, under NPDES permit number CA0077682. As such, any potential increase in wastewater treatment flows associated with Alternative A would be subject to treatment that meets, at a minimum, these existing regulatory levels for water quality. Also, as discussed in greater detail in **Section 4.11**, the

SRCSW WWTP is projected to have available capacity to meet wastewater treatment requirements for Alternative A. Therefore, implementation of Alternative A is not anticipated to result in a reduction in the quality of wastewater discharged from the SRCSW WWTP, and would not result in a reduction in water quality downstream. Therefore, these impacts would be less than significant.

Impact 3.3: Changes in Drainage and Flooding Patterns

Construction of Alternative A would involve operation of heavy equipment, stockpiling of soils, grading, installation of pipelines, and other activities that would alter existing topographic and drainage features on site. Compaction of soils by heavy equipment could decrease the infiltration rates of surface soils, causing increased runoff. This could in turn result in changes to drainage patterns and, unless properly managed, result in altered or increased flooding on site and downstream.

Installation and operation of the proposed facilities would also result in the fill or realignment of many of the minor drainages located on site, which are tributary to Morrison Creek. In lieu of these existing drainages, engineered stormwater drains and other stormwater infrastructure would be installed in order to convey stormwater from the proposed built areas. Unless designed and managed properly, these facilities could result in increased ponding or flooding, onsite or downstream.

Roofs, sidewalks, and other impervious surfaces prevent the natural drainage and infiltration of stormwater through soil. Surface water runoff has a greater volume and rate when the site is paved or otherwise covered by an impervious surface(s), because surface water infiltration rates are reduced or eliminated compared to undeveloped, unpaved areas. As a result, increases in impervious surfaces result in increased surface runoff volumes and peak flow rates. These can in turn produce considerable changes in downstream hydrology, as compared to pre-development conditions, resulting in increased or exacerbated flooding on site or downstream, such as by exceeding existing or proposed drainage system capacities. These impacts would be significant and adverse, but implementation of **Mitigation Measure 3.3** would reduce impacts to a less-than-significant level.

Mitigation Measure

Measure 3.3: Comprehensive Drainage Plan. In order to ensure that the proposed development would not result in detrimental increases in stormwater flow or flooding on site or downstream the project proponent would prepare and adhere to a Comprehensive Drainage Plan. The comprehensive drainage plan would include engineered facilities, such as retention basins, flood control channels, storm drainage facilities, and other features needed to ensure no net increase in stormwater discharge under a minimum 20-year, 24-hour storm event, as a result of the development. Development related increases in stormwater flows would be assessed based on proposed changes in impervious surface coverage on site, as well as proposed grading and related changes in site topography.

Impact 3.4: Floodplains Values; Interference with Flood Flows

As discussed in **Section 3.3, Hydrology and Water Quality**, the Federal Emergency Management Agency (FEMA) has not completed floodplain delineation and mapping of the project site and thus

the extent to which flooding could occur, and the land area that could potentially be inundated, during a 100-year storm event is not presently known. Proposed uses within the action area which could potentially be located in the 100-year floodplain include the Parks/Recreation area and Preserve. These land uses are in proximity to Morrison Creek, which is associated with the 100-year floodplain immediately downstream of the project site (**Figure 3.3-2**). No new buildings are proposed in close proximity to Morrison Creek within the Parks/Recreation area or Preserve although passive recreational uses such as trails could be developed, consistent with Sacramento County General Plan Conservation Element Policy discussed below. The tributary of Morrison Creek within the proposed University Village/Residential area is not associated with the 100-year floodplain either upstream or downstream of the project site; thus it is not likely that the areas adjacent to the tributary in the University Village/Residential area would be within the 100-year floodplain.

The development of facilities in the 100-year floodplain which could not support seasonal inundation would be considered a significant and adverse impact. As the extent of flooding and inundation on the project site is unknown, **Mitigation Measures 3.4** would be required to ensure that impacts remain less than significant.

In accordance with Conservation Element Policy CO-94 of the Sacramento County General Plan, development within the 100-year floodplain shall be limited to land uses that can support seasonal inundation. As all proposed development would be required to adhere to this condition, potential flooding associated with the discharge fill under Alternative A is not expected to result in significant, adverse increases in flood heights.

Mitigation Measures

Measure 3.4: 100-Year Flood Extent Investigation. Prior to project level engineering, design, or construction of the proposed facilities, the project proponent would complete an evaluation of potential 100-year flooding for areas of proposed development. The analysis would include an assessment of potential for flooding along Morrison Creek, its tributaries, and other waterways located on site. The analysis would be completed in accordance with FEMA floodplain delineation and mapping procedures, and would be used as a basis for detailed planning for development within the action area.

Impact 3.5: Flooding due to Dam Failure

A study was previously completed to assess the extent of downstream flooding that would result in the event of a dam failure at Mather Lake (USACE, 1996). As discussed in **Section 3.3**, dam failure would result in the inundation of downstream areas located along Morrison Creek, including potential inundation of a portion of the existing residential development located on site. Regarding proposed uses and facilities, inundation due to dam failure would be limited to areas that are delineated as Parks/Recreation or Preserve under Alternative A. The proposed residential and commercial uses proposed under Alternative A are not located in expected areas of inundation due to dam failure. However, the Parks/Recreation area could include facilities which could be affected significantly as a result of potential inundation associated with a dam failure. Therefore,

implementation of **Mitigation Measure 3.5** would be required to reduce impacts to a less-than-significant level.

Mitigation Measure

Measure 3.5: Facility Restrictions within Potential Dam Failure Inundation Areas.

The project proponent shall ensure to the extent practicable that permanent structures are sited outside of areas of inundation, as delineated by the USACE (1996) study. In the event that siting of a structure within the inundation area cannot be avoided, the project proponent shall ensure that the minimum finished floor level of that structure is raised to the maximum anticipated inundation height, as a result of catastrophic dam failure, plus at least one foot of additional freeboard. Note that the placement of fill, as relevant, is subject to Sacramento County General Plan Policy CO-94.

Impact 3.6: Potential for Depletion of Groundwater

Impervious surfaces: Installation of impervious surfaces prevents infiltration of stormwater into the underlying aquifer. Alternative A would include installation of a substantial area of new impervious surfaces. However, as discussed in Section 3.3, groundwater recharge on site under existing conditions is expected to be minimal, due to nearly impervious clay layers located across most of the site. It is these clay layers that enable the formation of vernal pools on site. Therefore, the new impervious surfaces that would be installed as part of Alternative A are not expected to reduce groundwater recharge on site.

Aggregate extraction: Implementation of aggregate extraction operations on site could result in increased use of groundwater for dust control and other aggregate extraction operations. Water use could be substantial, and increasing the use of groundwater on site in support of aggregate extraction operations could result in additional reductions in groundwater levels in areas underlying the site. This is considered a significant and adverse impact. Implementation of **Mitigation Measure 3.6** would reduce this impact to a less-than-significant level.

Mitigation Measure

Measure 3.6: Limitations on Groundwater Use for Aggregate Extraction Operations.

In order to ensure that aggregate extraction operations would not result in a reduction in groundwater levels, the project proponent would ensure that aggregate extraction operations would not result in a net increase in the total volume of groundwater that is extracted on site, on an annual basis. If additional water is required for aggregate extraction operations, that water would be provided from a separate source.

Impact 3.7: Aggregate Extraction Impacts

Aggregate extraction is discussed separately as it is a unique use. Alternative A would include use of approximately 60 acres of land for aggregate extraction, via open pit mining operations, as described in **Chapter 2.0**, Alternatives. Potential impacts associated with aggregate extraction operations are as follows:

Erosion and water quality degradation: During aggregate extraction operations, improper management of stormwater at the aggregate extraction pit, as well as overburden storage areas, could result in erosion. Additionally, use of heavy equipment on site (front loaders, aggregate trucks, conveyors, etc) could result in accidental releases of fuels, oils, coolants, and other potential pollutants associated with aggregate extraction operations. These pollutants as well as stockpiled overburden or other soils could become entrained in stormwater during rain events, potentially resulting in significant and adverse impacts associated with degradation of water quality on site or downstream. Implementation of **Mitigation Measures 3.7a and b** would reduce this impact to a less-than-significant level.

Aggregate mine closure: Upon completion of aggregate extraction activities, decommissioning and remediation of the mine site would occur. This could result in potential changes in drainage patterns, such as discharge to channels with insufficient capacity, routing of drainages through unstable soils, improperly sized swales or retention ponds. These actions could result in significant and adverse impacts associated with deleterious changes to stormwater drainage or flood flow patterns, such that increased rates of stormwater discharge or soil erosion could occur following closure. Implementation of **Mitigation Measure 3.7c** would reduce this impact to a less-than-significant level.

Mitigation Measures

Measure 3.7a: Stormwater Protection. The project proponent would ensure that all drainage on site in the aggregate extraction area, including the aggregate extraction area, overburden storage areas, and equipment storage areas, would be contained on site pursuant to Sacramento County Standards. Stormwater would be retained in the aggregate extraction area, or in dedicated retention and settling ponds, buffer areas, vegetated swales or similar stormwater quality protection facilities, sufficient to remove sediment and operation related pollutants from stormwater flows. Upon final reclamation of the aggregate extraction area, site drainage is expected to be directed to recessed reclaimed areas, and away from surface water drainages.

Measure 3.7b: Spill Prevention Control. The project proponent would ensure that all aggregate extraction operations are covered under an applicable spill prevention, control, and countermeasures (SPCC) plan. The SPCC plan would include measures to prevent spills of fuels, oils, greases, antifreeze, and other potential water quality pollutants that would be used on site. The SPCC plan would also include measures for containing, controlling and cleaning up/remediating spills that do occur on site, in order to ensure that such spills do not result in subsequent degradation of water quality.

Measure 3.7c: Prepare Reclamation Plan. The project proponent would ensure that a comprehensive Reclamation Plan is completed that addresses end of life procedures for closing the aggregate mine. In regards to hydrologic resources, the Reclamation Plan would incorporate requirements for post-use grading and rehabilitation operations. Stockpiled overburden would be replaced in its original location, and graded to meet, as closely as possible, natural grades and topography. In order to protect surface water quality following rehabilitation, land surfaces would be graded to drain internally to depleted former mined areas.

4.3.2 Alternative B and Alternative C

The impacts and mitigation for Alternatives B and C are the same as those identified for Alternative A. **Section 4.1.2** explains the applicability of Alternative A impacts to Alternatives B and C.

4.3.3 Alternative D – No Permit Alternative

Impact 3.1: Construction Related Water Quality Degradation

Potential future development under Alternative D would result in similar types of potential water quality effects due to construction activities as compared to other alternatives, except that under Alternative D, these effects would be substantially reduced in intensity. Implementation of these mandatory measures are expected to be adequate to ensure that stormwater quality is not degraded and therefore impacts would be less than significant.

Impact 3.2: Operational Period Water Quality Degradation

Future development on the project site could result in impacts similar to other alternatives with respect to (1) stormwater quality of runoff from impervious surfaces and (2) wastewater discharge. Because the intensity of development would be substantially reduced under Alternative D, the intensity of potential operational period water quality impacts would also be reduced. Adherence to the conditions of the NPDES General Permit for Stormwater and the requirements of the Stormwater Quality Design Manual for Sacramento and South Placer Regions would ensure that impacts remain less than significant.

Impact 3.3: Changes in Drainage and Flooding Patterns

Future development under Alternative D may involve the use of heavy machinery, grading, and installation of new impervious surfaces. However, no major drainages would be affected, and flooding patterns would be unlikely to be substantially affected. Thus, impacts would be less than significant.

Impact 3.4: Floodplain Values; Interference with Flood Flows

Future development that may occur under Alternative D would be outside of the areas susceptible to 100-year flooding. Furthermore, flood flows would not be redirected under this alternative, as any future buildings would be limited to existing built-up areas. No impact would occur under this alternative.

Impact 3.5: Flooding due to Dam Failure

Alternative D would not result in the construction or installation of new housing, commercial, or other facilities that could be harmed by flooding due to dam failure. Alternative D would not alter the course of flooding associated with failure of Mather Dam. Therefore, no impact would occur.

Impact 3.6: Potential for Depletion of Groundwater

Alternative D would not result in a reduction of groundwater recharge associated with any new impervious surfaces. Additionally, although aggregate extraction may still occur under

Alternative D, any future aggregate development would need to comply with local ordinances and the California Environmental Quality Act, including demonstrating that ground water resources would not be affected. As such, impacts are anticipated to be less than significant.

Impact 3.7: Aggregate Extraction Impacts

Under Alternative D, aggregate extraction could occur. Operation of aggregate extraction could result in operation and post-operations period water quality degradation, and could also result in changes to erosion and drainage patterns following decommissioning, such as described for the other alternatives. As a reclamation plan addressing these issues is required by State and local laws, it is anticipated that impacts under this alternative would be less than significant.

References

US Army Corps of Engineers (USACE), 1996. Mather Lake Dam Breach Study, Morrison Creek Basin, California. Sacramento: Available from USACE, Sacramento District.

4.4 Air Quality and Global Climate Change

Methodology

The following air quality analysis compares emissions from the alternatives to Sacramento Metropolitan Air Quality Management District (SMAQMD) thresholds. SMAQMD thresholds encompass factors taken into account under the National Environmental Policy Act to determine the significance of an action in terms of its context and the intensity of its impacts. Construction emissions are also compared to federal de minimis thresholds, though as discussed in **Section 3.4**, general conformity with respect to the federal action will be determined in the Record of Decision.

Construction, operation and greenhouse gas emissions were calculated using the Urban Emissions model, version 9.2.4 (URBEMIS 2007; Rimpo and Associates, 2008), SMAQMD's Guide to Air Quality Assessment in Sacramento County (2009), and, when relevant, trip generation data from the traffic analysis (DKS Associates, 2010). Additional information and model results are provided below and in **Appendix C**. Impacts related to greenhouse gas emissions, global climate change, and the effect of off-site odors on proposed development are included in **Section 4.16**, Cumulative Effects. The Applicant's Preferred Alternative and other alternatives would not result in increased air traffic or introduce new sources of lead emissions; consequently, lead emissions are not required to be quantified and are not further discussed in this analysis.

4.4.1 Alternative A – Applicant's Preferred Alternative

Impact 4.1: Effects from Construction Related Emissions

Construction emissions are considered short term and temporary in duration, but have the potential to represent a significant, adverse impact on air quality. Construction related emissions arise from a variety of activities, including: (1) grading, excavation, road building, and other earth moving activities; (2) travel by construction equipment and employee vehicles, especially on unpaved surfaces; (3) exhaust from construction equipment; (4) architectural coatings; and (5) asphalt paving.

Emissions of ozone precursors, ROG and NO_x, are generated primarily by mobile sources and vary as a function of vehicle trips per day and the types and number of heavy-duty, off-road equipment used and the intensity and frequency of their operation. A large portion of construction-related ROG emissions also results from the application of asphalt.

Construction-related fugitive dust emissions would vary from day to day, depending on the level and type of activity, silt content of the soil, and the weather. In the absence of mitigation, construction activities could result in significant and adverse quantities of dust, and as a result, local visibility and PM₁₀ concentrations may be adversely affected on a temporary and intermittent basis during construction. In addition, the fugitive dust generated by construction would include particles larger than PM₁₀, which would fall out of the atmosphere within several hundred feet of the specific construction site and could result in nuisance-type impacts, rather than adverse health effects.

Preliminary construction phasing information is included in **Chapter 2.0**. It is assumed for this analysis that large portions of development would undergo construction at one time, and this

construction would require substantial amounts of earthwork and grading. Construction of the site is anticipated to commence in 2015 with build-out by 2025. Because of the size of the proposed development and the extended period until full build out, it is likely that construction could occur simultaneously at various locations on the project site over time. In other words, site grading, asphalt paving, building construction, and the application of architectural coatings could take place at different areas of the project site at the same time. Given that exhaust emission rates of the construction equipment fleet in the state are expected to decrease over time due to federal, state and SMAQMD-led efforts, maximum daily and annual construction emissions were estimated using the earliest calendar year when construction would begin (i.e., 2015) in order to generate conservative estimates.

Predicted unmitigated and mitigated construction emissions for the worst-case day are presented in **Table 4.4-1** and compared to the SMAQMD thresholds. As depicted in **Table 4.4-1**, construction activities are expected to generate significant, adverse emissions of NO_x when compared to SMAQMD thresholds.

**TABLE 4.4-1
DAILY CONSTRUCTION EMISSIONS ESTIMATES (ALTERNATIVES A, B AND C)**

Pollutant	Construction Emissions ¹				
	ROG	NO _x	PM10	PM2.5	CO
Unmitigated Maximum - lbs/day	819	113	1,544	327	375
Mitigated Maximum - lbs/day ²	739	100	144	32	375
SMAQMD Thresholds (lbs/day)	NA ³	85	NA ³	NA ³	NA ³
Exceeds Threshold (Yes or No)?	No⁴	Yes	No	No	No

¹ Construction emissions estimates were made using URBEMIS 2007.

² Emission reductions incorporated into URBEMIS modeling are described below in Mitigation Measures 4.1a through 4.1d. Since construction would disturb 15 acres or less on a given day (SMAQMD's screening criteria for determining the need for detailed dispersion modeling), mitigated particulate emission concentrations would not be considered significant.

³ NA = Not Available. The SMAQMD has not established mass thresholds during the construction phase for ROG, CO, PM10, or PM2.5.

⁴ Architectural coatings and asphalt paving are the primary sources of ROG during construction. Development must comply with SMAQMD Rules and Regulations, including Rule 442 (Architectural Coatings) and Rule 453 (Cutback and Emulsified Asphalt Paving Materials).

Because emissions of NO_x would exceed SMAQMD's threshold, and because grading activities (PM10) are anticipated to be extensive, construction-generated emissions of criteria air pollutants and precursors could violate or contribute substantially to an existing or projected air quality violation. Also, construction emissions of criteria air pollutants and precursors could expose sensitive receptors to substantial pollutant concentrations, particularly if grading and other ground disturbance activities would occur near areas that have already been developed (and where people are already living or working) in the project area. In addition, because the SMAQMD's thresholds approximately correlate with reduction requirements for land use and heavy-duty vehicle emissions in the State Implementation Plan, construction-generated emissions could also conflict with the State Implementation Plan. This impact is considered significant and adverse. Implementation of the mitigation measures listed below would reduce impacts to a less-than-significant level.

Mitigation Measures

Measure 4.1a: Limit Daily Grading Activities. The project proponent would require the construction contractors to limit the maximum daily disturbed area throughout the project site to 15 acres or less. If daily grading is projected to be greater than 15 acres, the project proponent would conduct dispersion modeling of PM10 emissions generated during construction to determine if estimated levels would exceed the California Ambient Air Quality Standard (CAAQS) at the nearest receptor. If significant, adverse PM10 concentrations are identified, a PM10 Reduction Plan would be prepared for approval by the SMAQMD that describes how concentrations would be limited to less-than-significant levels.

Measure 4.1b: Use Basic Construction Emission Control Practices. The project proponent would require the construction contractors to implement SMAQMD Basic Construction Emission Control Practices.

Measure 4.1c: Use Enhanced Exhaust Control Practices. The project proponent would require construction contractors to implement the SMAQMD Enhanced Exhaust Control Practices.

Measure 4.1d: Compensate for NOx Emissions. The project proponent would pay SMAQMD an off-site mitigation fee for the purpose of reducing NOx emissions to less than the threshold level (i.e., less than 85 lbs/day). The specific fee amounts would be calculated when the daily construction emissions are determined. Calculation of fees associated with each development phase would be conducted by the project proponent in consultation with SMAQMD staff before the approval of grading plans.

Impact 4.2: Effects from Operational Emissions

Over the long-term, Alternative A would result in an increase in emissions primarily due to motor vehicle trips and onsite stationary sources and area sources (e.g., natural gas emissions from space heating). In addition, heavy duty off-road equipment would be used at the aggregate extraction site. Operational emissions for Alternative A build-out (year 2025) have been determined using URBEMIS 2007 and are presented in **Table 4.4-2** below.

**TABLE 4.4-2
DAILY OPERATIONAL EMISSIONS ESTIMATES - ALTERNATIVES A, B AND C**

Pollutant	Operational Emissions ¹				
	ROG	NOx	PM10	PM2.5	CO
On-road and Area Sources - lbs/day	933	580	2,252	692	7,857
Aggregate Quarry Operations - lbs/day ²	4	40	144	32	20
Total Operational Emissions – lbs/day	937	620	2,396	724	7,877
SMAQMD Thresholds (lbs/day)	65	65	NA ³	NA ³	NA ^{3,4}
Exceeds Thresholds (Yes or No)?	Yes	Yes	No	No	No

1. Area source and operational emissions estimates were made using URBEMIS 2007. ROG and NOx daily estimates are for summertime conditions, whereas CO and particulates are for wintertime conditions.
2. Aggregate emissions were modeled using URBEMIS 2007 and assumes an equipment mix based on ESA's previous work on aggregate quarries. Particulate emissions shown in this table include watering disturbed areas and reducing vehicle speed on unpaved roads, which are included in Mitigation Measure 4.1a through 4.1c.
3. NA = Not Available. The SMAQMD has not established mass thresholds for CO, PM10, or PM2.5.
4. CO is discussed further below.

Based on the estimates shown in **Table 4.4-2**, Alternative A's criteria pollutant contribution to regional air quality would be above both of the SMAQMD thresholds. Therefore, the operational impacts of Alternative A would be considered significant and adverse. Development and implementation of mitigation would ensure that operational emissions would be reduced by at least 15 percent; however, because of the large size of the development, emissions would still be expected to exceed the applicable thresholds. This is a significant and adverse impact. There are no other feasible mitigation measures that would further reduce this alternative's air quality impacts and thus impacts would remain significant and adverse after mitigation.

Mitigation Measures

Implement Mitigation Measure 4.1b: Basic Construction Emission Control Practices during aggregate extraction operations.

Measure 4.2: Develop and Implement an Air Quality Mitigation Plan (AQMP). The project proponent would develop an AQMP in coordination with and approved by SMAQMD. The AQMP would include measures to reduce operational emissions by at least 15 percent.

Impact 4.3: Construction Emissions with Respect to Federal General Conformity

Predicted unmitigated and mitigated construction emissions for the worst-case year (year with most concurrent construction activities) are presented in **Table 4.4-3** and compared to the federal de minimis thresholds. As depicted in **Table 4.4-3**, construction activities would with respect to ROG would exceed federal de minimis thresholds.

**TABLE 4.4-3
FEDERAL ANNUAL CONSTRUCTION EMISSIONS ESTIMATES - ALTERNATIVES A, B AND C**

Pollutant	Construction Emissions ¹				
	ROG	NOx	PM10	PM2.5	CO
Unmitigated Maximum – tons/year	37	12	51	11	34
Mitigated Maximum – tons/year ²	33	12	51	11	34
Federal De Minimis Thresholds (tons/year)	25	25	100	NA ³	100
Exceeds Threshold (Yes or No)?	Yes	No	No	No	No

¹ Construction emissions estimates were made using URBEMIS 2007. See Appendix C for details.

² Emission reductions incorporated into URBEMIS modeling are described below in Mitigation Measures 4.3 to reduce ROG.

³ NA = Not Available. There is no established Federal de minimis threshold for PM2.5.

Because emissions of ROG would exceed the federal de minimis threshold, construction-generated emissions of criteria air pollutants and precursors could violate or contribute substantially to an existing or projected air quality violation. This is a significant and adverse impact. Even with implementation of recommended mitigation, the federal de minimis threshold for ROG would be exceeded. This impact remains significant and adverse after implementation of the recommended mitigation.

Mitigation Measure

Measure 4.3: Use Low VOC Coatings. The project proponent would require construction contractors to use low VOC architectural coatings for all buildings in order to reduce ROG emissions.

Impact 4.4: Effects from Operational Emissions with Respect to Carbon Monoxide

The primary mobile-source pollutant of concern is CO. Local mobile-source CO emissions near roadway intersections are a direct function of traffic volume, speed, and delay. CO disperses rapidly with distance from the source under normal meteorological conditions; however, under certain specific meteorological conditions, CO concentrations near roadways and/or intersections may reach unhealthy levels with respect to local sensitive land uses, such as residential units, hospitals, schools, and childcare facilities. Thus, high local CO concentrations are considered to have a direct influence on the receptors they affect. SMAQMD recently released new screening criteria that provide a conservative indication of whether vehicle trips expected to be generated by Alternative A would result in the generation of CO emissions that exceed or contribute to an exceedance of the CAAQS for CO (SMAQMD, 2009).

Based on the traffic analysis described in **Section 4.9** (Transportation and Traffic), some signalized intersections in the vicinity of the project site are predicted to operate at an unacceptable LOS under build out conditions of Alternative A. However, because none of the intersections would be anticipated to accommodate volumes of traffic that would exceed 31,600 vehicles per hour, all affected roadways would be at-grade, and the mix of vehicles traveling on these roadways is not anticipated to be substantially different from the County average, Alternative A would not result in concentrations of CO that would exceed or contribute to an exceedance of the CAAQS. Furthermore, due to stricter vehicle emissions standards in newer cars, new technology, and increased fuel economy, future CO emission factors under build out conditions (year 2025) are expected to be substantially lower than those under existing conditions. Thus, even though there would be more vehicle trips under Alternative A at build out than under existing conditions, local mobile-source CO emissions generated by Alternative A are not expected to result in or substantially contribute to concentrations that exceed the 1-hour ambient air quality standard of 20 ppm or the 8-hour standard of 9 ppm. Local CO concentrations associated with Alternative A traffic would be less than significant.

Impact 4.5: Effects from Construction and Operational Emissions with Respect to Toxic Air Contaminants

Alternatives that have the potential to expose the public to Toxic Air Contaminants (TACs) in excess of the following thresholds would be considered to have a significant, adverse air quality impact if:

- Probability of contracting cancer for the Maximally Exposed Individual (MEI) exceeds 10 in one million people for 70 year exposure, or
- Ground-level concentrations of non-carcinogenic TACs would exceed a Hazard Index greater than 1 for the MEI.

For this analysis, impacts associated with TACs are analyzed based on buffer zones between sensitive receptors and existing and proposed land uses that emit TACs in accordance with the recommendations provided in the *Air Quality and Land Use Handbook: A Community Health Perspective* (ARB, 2005).

Construction

TAC emissions from construction activities under Alternative A would be related to DPM emissions from heavy equipment operations during grading, excavation, and transportation activities. Health effects from carcinogenic air toxics are usually described in terms of individual cancer risk. Short-term construction activities could expose sensitive receptors to levels that exceed applicable standards because of the close proximity between on-site diesel equipment and residences (Independence at Mather and new residences within the University Village/Residential area). This impact would be significant and adverse. Mitigation recommended below would reduce impacts to a less-than-significant level.

Operations

On-Site Operational Stationary Source Emissions. Long-term operations would likely include the installation of diesel-fueled emergency generators at some of the proposed land uses. However, any stationary sources that may emit TACs would be subject to SMAQMD permitting and Toxics Best Available Control Technology (T-BACT) requirements. SMAQMD would assess such sources for potential health risk impacts based on their potential to emit TACs. If it is determined that the sources would emit TACs in excess of SMAQMD's applicable threshold, T-BACT would be implemented to reduce emissions. If the implementation of T-BACT would not reduce the risk below the threshold, then SMAQMD would deny the required permit. As a result, impacts associated with exposure of sensitive receptors to substantial toxic air emissions from stationary source operations would be less than significant.

On-Site Operational Mobile Source Emissions. On-site mobile sources of TAC emissions would primarily be associated with the operation of school buses transporting students to and from the proposed elementary school and diesel-fueled delivery trucks associated with proposed on-site commercial and industrial activities.

Emissions from school buses can vary depending on various factors, including bus type, age, and maintenance, and the amount of time spent idling. Generally, children are more vulnerable than adults to air pollutants. In response to this concern, ARB adopted an Airborne Toxic Control Measure (ATCM) as part of the *Particulate Matter Risk Reduction Plan* (ARB, 2000) specifically to deal with diesel emissions from school buses. This measure became effective July 16, 2003. According to ARB, implementation of the ATCM would eliminate unnecessary idling for school buses and other heavy-duty vehicles, thus reducing localized exposure to emissions of TACs and other harmful pollutants at and near schools and protecting children from unhealthy exhaust emissions.

In addition to the school bus-idling ATCM, ARB has adopted an idling-restriction ATCM for large commercial diesel-powered vehicles. In accordance with this measure, which became effective

February 1, 2005, affected vehicles are required to limit idling to no longer than 5 minutes under most circumstances. Nonetheless, given that proposed onsite commercial land uses have not yet been identified and given the potential proximity of nearby sensitive receptors, exposure of nearby on-site receptors to mobile-source TACs associated with commercial and industrial activities is a significant, adverse impact. Mitigation recommended below would reduce impacts to a less-than-significant level.

Land Use Compatibility. Alternative A would include residences, schools, and recreational facilities. Because of the sensitivity of such uses, an assessment of compatibility with surrounding land uses with respect to TAC emissions is appropriate. The *Air Quality and Land Use Handbook: A Community Health Perspective* (ARB 2005), which is advisory rather than regulatory, includes recommendations that may apply to Alternative A and other alternatives.

The siting of on-site proposed sensitive receptors under Alternative A would be consistent with the ARB recommendations (ARB, 2005), and thus would not result in the exposure of sensitive receptors to TACs that exceed recommendations. As a result, impacts associated with exposure of sensitive receptors to substantial toxic air emissions associated with land compatibility issues would be less than significant.

Mitigation Measures

Measure 4.5: Reduce Potential TAC Exposure to Sensitive Receptors. The project proponent would develop a plan to reduce the exposure of sensitive receptors to TACs generated by construction and operational activity. Each plan would be developed by the project proponent in consultation with SMAQMD. The plan would be submitted to the County for review and approval before the approval of any grading plans.

For construction activities, the plan may include, but not be limited to, measures such as scheduling activities when the residences are least likely to be occupied, requiring equipment to be shut down when not in use, prohibiting heavy trucks from idling, using new diesel engines that are designed to minimize DPM emissions (usually through the use of catalyzed particulate filters in the exhaust), or retrofitting older engines with catalyzed particulate filters which would reduce up to 85% of DPM emissions. Applicable measures would be included in all development plans and specifications for each development phase.

For operations, plans and may include, but not limited to, measures such as:

- Proposed commercial land uses that have the potential to emit TACs (such as loading docks for diesel delivery trucks) would be located as far away as possible from existing and proposed sensitive receptors.
- Signs would be posted at all loading docks and truck loading areas which indicate that diesel-powered delivery trucks must be shut off when not in use for longer than 5 minutes on the premises in order to reduce idling emissions. This measure is consistent with the ATCM to Limit Diesel-Fueled Commercial Motor Vehicle Idling, which was approved by California's Office of Administrative Law in January 2005.
- Proposed commercial and industrial land uses that have the potential to host diesel trucks would incorporate idle reduction strategies that reduce the main propulsion

engine idling time through alternative technologies such as, IdleAire, electrification of truck parking, and alternative energy sources for transport refrigeration units (TRUs), to allow diesel engines to be completely turned off.

- The ARB *Air Quality and Land Use Handbook: A Community Health Perspective* recommendations would be taken into consideration during the design process.

Impact 4.6: Objectionable Odors

Odor impacts are addressed in a qualitative manner based on screening distances and odor complaints, as recommended in SMAQMD guidance. In regards to operations, no sources of substantial nuisance odors, such as wastewater treatment facilities, waste-disposal facilities, or agricultural operations, are proposed as part of Alternative A. However, commercial uses could include sources of odorous emissions (e.g., fast-food restaurants) that could be perceived as offensive to some individuals. The operation of such sources could expose a substantial number of receptors to objectionable odorous emissions which is a significant and adverse impact. Implementation of the mitigation measures described below would ensure that odors generated by Alternative A would be less-than-significant.

Mitigation Measure

Measure 4.6: Reduce Odors. The project proponent would implement the following odor control measures during construction or operation:

- Consider the odor-producing potential of land uses when the exact type of facility that would occupy areas zoned for commercial, industrial, or mixed-use land uses is determined. Facilities that have the potential to emit objectionable odors would be located with appropriate buffers from existing and proposed sensitive receptors.
- Identify odor control devices within building permit applications to mitigate the exposure of receptors to objectionable odors if a potential odor-producing source is to occupy the project area. The identified odor control devices would be installed before the issuance of certificates of occupancy for the potentially odor-producing use.

Measures related to the Sacramento Rendering Company plant are discussed in Cumulative Section 4.16.3.3.

4.4.2 Alternative B and Alternative C

The impacts and mitigation for Alternatives B and C are the same as those identified for Alternative A. **Section 4.1.2** explains the applicability of Alternative A impacts to Alternatives B and C.

4.4.3 Alternative D – No Permit Alternative

Under Alternative D, in the near term emissions (primarily associated with vehicle trips and area sources from existing land uses) from the project site would continue generally unchanged. The project site may be developed with additional airport commercial uses and aggregate extraction. Impacts associated with air quality would be subject to review under state and local laws under this scenario.

Impact 4.1 and 4.3: Effects from Construction Related Emissions

Future development under Alternative D would include infill development and aggregate extraction. These uses could result in significant, adverse impacts as discussed for other alternatives. Under State and local law, potential development would require similar mitigation to that discussed for Alternatives A, B and C to reduce construction emissions. Construction emissions with mitigation are anticipated to be less than significant.

Impact 4.2: Effects from Operational Related Emissions

Aggregate extraction land uses can generate criteria pollutant emissions. It is therefore possible that future development under Alternative D may result in a significant impact related to operational emissions. Under State and local law potential development would require similar mitigation to that discussed for Alternatives A, B and C which would reduce emissions to a less-than-significant level.

Impact 4.4: Effects from Operational Emissions with Respect to Carbon Monoxide

As Alternative D would result in less traffic trip generation than for Alternatives A, B and C, and these alternatives resulted in less than significant levels of emissions, it is reasonable to assume Alternative D would also result in less than significant emissions related to carbon monoxide.

Impact 4.5: Effects from Construction and Operational Emissions with Respect to Toxic Air Contaminants

While larger aggregate extraction operations can generate substantial TAC (primarily DPM) emissions, the total land areas proposed under Alternative D would not be substantial, and thus a less-than-significant impact would be anticipated.

Impact 4.6: Objectionable Odors

Alternative D would not result generate substantial odors and thus this impact would be less than significant.

References

- California Air Resources Board (ARB), 2000. Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles. October 2000.
- California Air Resources Board (ARB), 2005. Air Quality and Land Use Handbook: A Community Health Perspective. April 2005.
- DKS Associates, 2010. Mather Specific Plan Transportation Analysis. Sacramento, California. December 2010. Available for review in Appendix E of this EIS.
- Rimpo and Associates, 2008. URBEMIS 2007 version 9.2.4, released February 2008.
- Sacramento Metropolitan Air Quality Management District (SMAQMD), 2009. Guide to Air Quality Assessment. December 2009.

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4.5 Biological Resources

This section analyzes the potential effects of alternatives on biological resources, including federally listed species and critical habitat, migratory birds, and special status species of state and local concern. Effects to wetlands and other waters of the United States (U.S.) are addressed in **Section 4.6**. The analysis of potential effects is based on the biological setting described in **Section 3.5**.

4.5.1 Alternative A – Applicant’s Preferred Alternative

Impact 5.1: Effects to Federally Listed Vernal Pool Species and Critical Habitat

Vernal pools and seasonal wetlands throughout the project site are known to support populations of the federally listed vernal pool fairy shrimp and vernal pool tadpole shrimp, and provide suitable habitat for conservancy fairy shrimp, Sacramento Orcutt grass, and slender Orcutt grass. This alternative would result in direct and indirect effects to suitable habitat for these species as well as the known populations. Direct effects would occur if a pool or a portion of a pool is affected by site grading or other ground disturbing activities. In calculating direct effects to habitat for vernal pool species, it is assumed that if any portion of a pool is directly affected by site grading or other ground disturbing impacts, then the entire pool is directly affected. This differs from the methodology used to calculate direct impacts to wetlands and other waters of the U.S., as described in Section 4.6. Indirect effects may occur if proposed activities within 250 feet of suitable habitat alter the surface and/or subsurface hydrology of the area (USFWS, 1996a). Potential direct and indirect effects to suitable habitat for vernal pool species (as defined in Section 3.5) are summarized in **Table 4.5-1** and **Figure 4.5-1**.

Based on this evaluation, development under Alternative A would result in the direct loss of approximately 31.82 acres of suitable habitat for vernal pool species. Of these acres, approximately 17.07 acres are classified as vernal pools or swales, with the remainder (14.76 acres) classified as seasonal wetlands and channels. Furthermore, development under Alternative A would indirectly affect up to 5.36 acres of habitat for vernal pool species located in the proposed Preserve and at Mather Airport.

In addition to the above effects, designated critical habitat for vernal pool tadpole shrimp and fairy shrimp would also be affected by Alternative A. Up to 3.27 acres of critical habitat for vernal pool tadpole shrimp and fairy shrimp would be directly affected and up to 4.06 acres of critical habitat would be indirectly affected. These impact calculations are a subset of those described above. No designated critical habitat for slender Orcutt grass and Sacramento Orcutt grass would be affected by Alternative A.

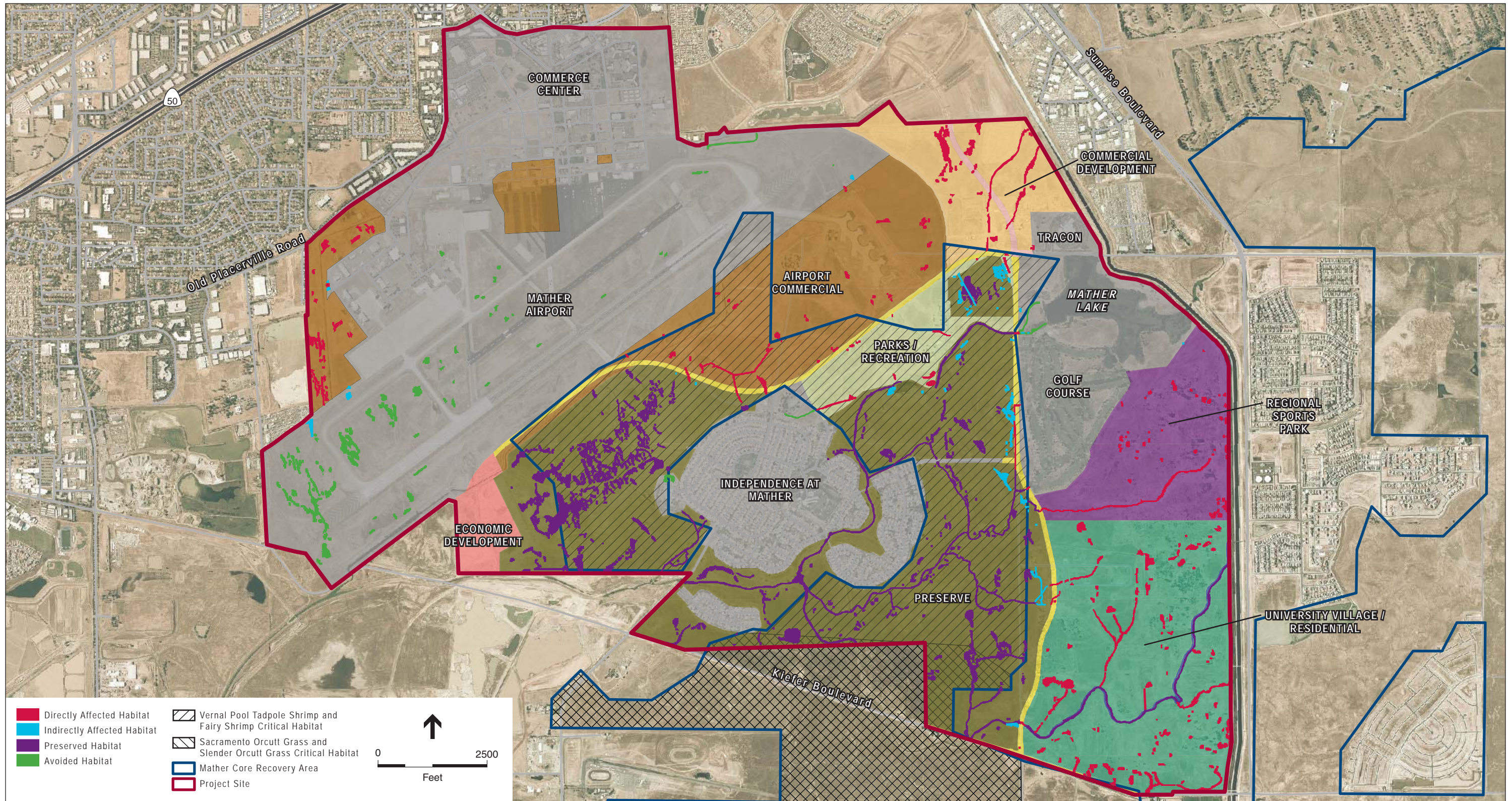
The direct loss of suitable habitat for these species, including the direct take of species, represents a significant, adverse impact. In addition, the proximity of proposed activities to habitat for vernal pool species presents the possibility of secondary effects to the habitat due to project-related disturbance. Deterioration of habitat for vernal pool species could result from the introduction of non-native invasive plant species, decreases in water quality due to erosion or sedimentation, changes in surface or subsurface hydrology, and human intrusion. Therefore, potential indirect effects to suitable habitat are also considered a significant, adverse impact.

**TABLE 4.5-1
EFFECTS TO HABITAT FOR VERNAL POOL SPECIES – ALTERNATIVE A**

Land Use	Direct Effects (Acres)	Indirect Effects (Acres)
<i>Airport Commercial</i>	5.51	0.79
Seasonal Wetland	3.10	0.17
Vernal Pools and Swales	2.41	0.62
<i>Commercial Development</i>	6.37	0.00
Seasonal Wetland	3.43	0.00
Vernal Pools and Swales	2.94	0.00
<i>Economic Development</i>	0.00	0.00
<i>Parks Recreation</i>	1.34	1.04
Seasonal Wetland	0.51	0.21
Vernal Pools and Swales	0.83	0.82
<i>Roadways and Infrastructure</i>	1.53	3.53
Seasonal Wetland	0.17	0.96
Vernal Pools and Swales	1.11	2.57
Channels and Streams	0.26	0.00
<i>Regional Sports Park</i>	3.12	0.01
Seasonal Wetland	2.63	0.01
Vernal Pools and Swales	0.20	0.00
Channels and Streams	0.29	0.00
<i>University Village/Residential</i>	13.95	0.00
Seasonal Wetland	4.19	0.00
Vernal Pools and Swales	9.58	0.00
Channels and Streams	0.18	0.00
Total	31.82¹	5.36¹

1. Totals are approximate and subject to rounding.
SOURCE: ESA, 2012; Sacramento County, 2011

Alternative A proposes to protect in perpetuity suitable habitat for vernal pool species, including approximately 67.83 acres of waters within an on-site Preserve and 3.61 acres within Riparian Buffer areas. When combined, this represents a preservation ration of approximately 1.9:1 for every acre of habitat directly and indirectly affected by proposed activities. As described in **Chapter 2.0**, wetlands within the proposed Preserve would be preserved and managed in accordance with the Wetland Management Plan that is subject to final approval by the United States Army Corps of Engineers (USACE), United States Fish and Wildlife Service (USFWS), California Department of Fish and Game (CDFG) and Environmental Protection Agency (EPA). The goals described in the plan include enhancing wetland habitat functions and services. These efforts could include restoring vernal pools that have been damaged by prior activities. Nevertheless, without additional compensation and mitigation, the onsite loss of habitat for vernal pool species is considered significant and adverse. With recommended mitigation, impacts would be reduced to a less-than-significant level.



SOURCE: NAIP, 2009; and ESA, 2012

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Figure 4.5-1
Potential Effect to Habitat for Vernal Pool Species - Alternative A

Mitigation Measures

Implement Measure 3.3: Comprehensive Drainage Plan.

Measure 5.1a: Compensate for the Loss of Habitat for Vernal Pool Species. The project proponent proposes on-site habitat preservation in perpetuity and purchase of habitat creation credits at an USACE and USFWS approved mitigation bank and/or to restore/enhance habitat within the designated Preserve areas upon USFWS approval to fully compensate for direct and indirect effects to habitat for federally listed vernal pool species. While final ratios would be determined in consultation with USFWS, it is estimated that compensation would be at a minimum 2:1 preservation ratio and 1:1 creation ratio for direct effects to habitat for vernal pool species (31.82 acres of direct effects), and a 2:1 preservation ratio for indirect effects to habitat for vernal pool species (5.36 acres of indirect effects).

Alternative A would include 71.44 acres of on-site habitat for vernal pool species preservation and enhancement. Thus, Alternative A proposes on-site preservation for direct and indirect effects at a 1.9:1 ratio. This includes the preservation of approximately 55.14 acres of vernal pool fairy shrimp and tadpole shrimp critical habitat and 4.33 acres of slender Orcutt and Sacramento Orcutt grass critical habitat. The level of restoration and enhancement activities proposed by the Wetland Management Plan has not yet been quantified.

To fully compensate for the direct loss of habitat for federally listed vernal pool species, the project proponent proposes to purchase habitat creation credits at an USACE and USFWS approved mitigation bank and/or restore/enhance habitat within the designated Preserve areas upon USFWS approval at a minimum 1:1 ratio for direct effects to habitat for vernal pool species. In addition, the project proponent would purchase habitat preservation credits at an USACE and USFWS approved mitigation bank and/or restore/enhance habitat within the designated Preserve areas upon USFWS approval for the direct and indirect effects to habitat for vernal pool species. Combined with the on-site preservation, this is expected to result in a 2:1 preservation component for direct and indirect effects.

Habitat compensation must occur prior to or concurrent with the development of each land use type. Compensation requirements for each land use are summarized in **Table 4.5-2**. Compensation for each land use must be approved by the USACE and USFWS prior to the initiation of construction activities.

Options for habitat compensation are described below. These options may be combined to meet the overall compensation needs for each land use.

Option 1: Purchase Vernal Pool Habitat Credits.

Prior to the initiation of construction, the project proponent would purchase the required acreage of vernal pool creation and preservation credits at a USACE and USFWS-approved mitigation bank. The project proponent would provide the USACE proof of the purchase prior to construction.

**TABLE 4.5-2
HABITAT COMPENSATION REQUIREMENTS BY LAND USE TYPE – ALTERNATIVE A**

Land Use	Habitat for Vernal Pool Species Compensation: 1:1 Creation (Acres)	Habitat for Vernal Pool Species Compensation: 0.1:1 Preservation (Acres)
Airport Commercial	5.51	0.63
Commercial Development	6.37	0.64
Economic Development	0.00	0.00
Parks Recreation	1.34	0.24
Roadways and Infrastructure	1.53	0.51
Regional Sports Park	3.12	0.31
University Village/Residential	13.95	1.40
Total	31.82	3.72

SOURCE: ESA, 2012; Sacramento County, 2011

Option 2: Implement On Site Restoration/Enhancement.

Direct effects to habitat for vernal pool species would be compensated through the restoration and/or enhancement of habitat for vernal pool species within on-site Preserve areas. The restoration goal would be to restore and enhance habitat for vernal pool species such that their ultimate functions and services are equal to or greater than the wetland features affected by the implementation of Alternative A. This effort could include restoring vernal pools and/or other suitable aquatic features that have been damaged by prior activities. The plan would include monitoring requirements to ensure the long term success of restored and enhanced habitats.

Measure 5.1b: Use Best Management Practices (BMPs) to Provide Effective Erosion and Sediment Control. Use of BMPs for stormwater control is expected to reduce the potential for preserved and avoided habitat for vernal pool species to be indirectly affected by sediment-laden discharges from construction sites. The performance and effectiveness of these BMPs would be determined either by visual means, where applicable (i.e., observation of above-normal sediment release), or by actual water sampling in cases where the verification of containment reduction or elimination is required to determine the adequacy of the measures. BMPs to be implemented would include, but are not limited to, the following:

- All disturbed surfaces or stockpile areas would be protected with erosion control measures in place during the period of October 1 through April 30, or as appropriate based on weather conditions.
- BMPs for temporary erosion control (such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation or other ground cover) would be employed per the product specifications for disturbed areas, stockpiled soil, and along culverts and drainage ditches on active construction sites and in downstream areas that may be affected by construction activities. Requirements for the placement and monitoring of the BMPs would be part of the contractor's project specifications. Performance and adequacy of the measures would be determined visually by site construction management and verified

by the County Department of Water Resources and Central Valley Regional Water Quality Control Board as appropriate.

- Dirt and debris would be swept from paved areas in construction zones on a daily basis as necessary to remove excessive accumulations of silt, mud or other debris. Sweeping and dust removal would be implemented by the contractor and oversight of these operations the responsibility of the construction site superintendent.
- All exposed/disturbed areas, left barren of vegetation due to project related activities, would be seeded, mulched and fertilized with a blend of native and/or naturalized grass and forb species. Locally obtained native wildflower seeds may be included in the seed mix. Planted areas must achieve an 80% acreage coverage rate to be considered successful. All exposed areas where seeding is considered unsuccessful after 90 days, would received appropriate soil preparation and a second application of seed/mulch/fertilizer. Quarterly monitoring would be conducted for a period of one year or until the target goal is met. The application, schedule, and maintenance of the vegetative cover would be the responsibility of the contractor and requirements to establish a vegetative cover would be included in the construction contractor's project specifications.
- If discharges of sediment or hazardous substances to drainage ways are observed, construction would be halted until the source of contamination is identified and remediated. Visual indications of such contamination include an oily sheen or coating on water, and noticeable turbidity (lack of clarity) in the water.

Measure 5.1c: Conduct Worker Environmental Awareness Training (WEAP). A Worker Environmental Awareness Program (WEAP) training for construction crews and construction forepersons would be conducted before any construction activities begin. The WEAP training would be conducted by a qualified wildlife biologist. The training would include a brief review of the special status species and other sensitive resources that could occur in the project area and their legal status and protection. The program would also cover all relevant mitigation measures, permit conditions and BMP plans, such as the Stormwater Pollution Prevention Plan (SWPPP) and/or erosion control and sediment plan. During WEAP training, construction personnel would be informed of the importance of avoiding ground-disturbing activities outside of the designated work area. A designated environmental inspector would be responsible for ensuring that construction personnel adhere to the guidelines and restrictions and that all persons working on site have attended a WEAP training session. WEAP training sessions would be conducted as needed for new personnel brought onto the job throughout the duration of construction.

Measure 5.1d: Limit Project Access Routes/Staging Areas. The total number of access routes, number and size of staging areas, and the total area of construction activity would be limited to those areas identified in the approved construction drawings and/or plans or as otherwise approved per permit conditions. Access routes and project boundaries would be clearly marked at all times. Access routes for heavy equipment to and from the project site would be restricted to established roadways to minimize habitat disturbance. The storing of construction equipment, vehicles, and supplies would be restricted to the designated construction staging areas outside of proposed Preserve(s), designated avoided, and riparian buffer areas. All fueling, cleaning and maintenance activities of vehicles and other equipment would be performed only in designated areas and at least 250 feet away from avoided/preserved habitats. As part of WEAP training, all workers would be informed of the importance of preventing spills and appropriate measures to take in the event of a spill. All spills would be cleaned up immediately.

Measure 5.1e: Protect Preserved and Avoided Habitats. Avoided and preserved habitat, including habitat within designated Preserve and Riparian Buffer areas, would be protected at all times from construction activities. Habitat protection measures would include the following:

- A USFWS-approved biologist (monitor) would inspect all construction-related activities at the project site to ensure that no unauthorized take of listed species or destruction of their habitat occurs. The biologist would have the authority to stop any activities that may result in such take or destruction until appropriate corrective measures have been completed. The biologist also would be required to report immediately any unauthorized impacts to the USFWS and the CDFG.
- Adequate fencing would be placed and maintained around all avoided (preserved) habitat for vernal pool species to prevent direct impacts from construction.

Impact 5.2: Potential to Conflict with provisions of the USFWS Vernal Pool Recovery Plan

As discussed in **Section 3.5**, the project site is located within the Mather Core Area of the *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (USFWS 2005), which is a Zone 1 core area having the highest priority for recovery. As stated in the Recovery Plan, the Mather Core Area has specific conservation goals, including protecting 95 percent of suitable habitat for vernal pool tadpole shrimp, slender Orcutt grass, and Sacramento Orcutt grass, and protecting 85 percent of suitable habitat for vernal pool fairy shrimp. Approximately 55.14 acres of suitable habitat for vernal pool species occurs within the area where the Mather Core Area overlaps the project site. These protection goals therefore correspond to preservation of approximately 46.9 acres (85 percent) and 52.4 acres (95 percent) of suitable habitat for vernal pool species where the Mather Core Area overlaps the project site.

Alternative A includes a large preservation component for habitat for vernal pool species. Approximately 51.67 acres of suitable habitat for vernal pool species within the Mather Core Area would be protected in perpetuity within the action area (**Figure 4.5-1**). This corresponds to 94 percent of the suitable habitat for vernal pool species within the Mather Core Area of the project site. However, some of this habitat may be indirectly affected by construction on and/or operation of adjacent proposed land use areas. **Table 4.5-3** summarizes the effects of Alternative A on suitable habitat for vernal pool species within the Mather Core Area of the project site.

As shown in **Table 4.5-3**, Alternative A would protect suitable habitat for those species targeted for protection within the Mather Core Area, with the majority of that being high quality habitat for vernal pool species. Furthermore, some of this habitat is expected to be restored and/or enhanced, thereby increasing habitat suitability for these species. Alternative A would be consistent with the goals of the USFWS recovery plan for vernal pool species as it protects at least 85% of the habitat for vernal pool species within the Mather Core Area. Thus, this impact is considered less-than-significant.

**TABLE 4.5-3
EFFECTS TO MATHER RECOVERY AREA HABITAT – ALTERNATIVE A**

Habitat Type	Total Acreage in Mather Recovery Area	Directly Affected (Acres)	Potentially Indirectly Affected (Acres)	Preserved Habitat (Acres) / Percent ¹	Preserved Habitat and not Indirectly Impacted (Acres) / Percent ²
Vernal Pools and Swales	41.21	2.04	3.09	39.18 / 95%	36.08 / 88%
Seasonal Wetlands	8.60	1.08	0.96	7.32 / 85%	6.36 / 74%
Ephemeral and Intermittent Channels	5.33	0.16	0.00	5.17 / 97%	5.17 / 97%
Total	55.14	3.27	4.06	51.67 / 94%	47.62 / 86%

1 Percent of habitat within the Mather Core Area that falls within proposed Preserve or Riparian Buffer land uses and is not directly impacted.

2 This amount assumes all potentially indirectly affected habitats (habitat for vernal pool species within 250 feet of proposed land disturbance) would be affected.

SOURCE: ESA, 2012; Sacramento County, 2011

Impact 5.3: Effects to Valley Elderberry Longhorn Beetle

Reconnaissance-level surveys of the project site identified the presence of elderberry shrubs that provide suitable habitat for valley elderberry longhorn beetle (VELB). These shrubs are located in areas proposed for the Regional Sports Park and the University Village. Implementation of Alternative A has the potential to adversely affect this species by adversely impacting suitable elderberry shrubs. While no exit holes were documented by these surveys, the shrubs represent potential habitat for all stages of the VELB's life cycle (Wetlands Research Associates, 2004c). Therefore, removal or degradation of elderberry shrubs may adversely affect VELB and limit management opportunities for its recovery. This is considered a significant, adverse impact. With recommended mitigation, impacts would be reduced to a less-than-significant level.

Mitigation Measure

Measure 5.3: Mitigate for Impacts to VELB and its Habitat. Prior to construction, the project site would be surveyed for the presence of the beetle and its elderberry host plant by a qualified biologist in accordance with USFWS protocols. If elderberry plants with one or more stems measuring 1.0 inch or greater in diameter at ground surface level occur on or adjacent to the construction site, or are otherwise located where they may be directly or indirectly affected by Alternative A, minimization and compensation measures, which include transplanting existing shrubs and planting replacement habitat (conservation plantings), would be undertaken (see below). Elderberry plants with no stems measuring 1.0 inch or greater in diameter at ground level are unlikely to provide habitat for the beetle because of their small size and/or immaturity. Therefore, no minimization measures are required for removal of elderberry plants with all stems measuring 1.0 inch or less in diameter at ground level.

For shrubs with stems measuring 1.0 inch or greater, the project proponent would ensure that elderberry shrubs within 100 feet of proposed construction be protected and/or compensated for in accordance with the *U.S. Fish and Wildlife Services' (USFWS) Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (USFWS, 1999) and the *Programmatic Formal Consultation Permitting Projects with Relatively Small Effects on the Valley Elderberry*

Longhorn Beetle Within the Jurisdiction of the Sacramento Field Office (USFWS, 1996b). A summary of the required mitigation measures is provided in **Appendix G**.

Impact 5.4: Effects to Golden Eagle

As described in **Section 3.5**, the golden eagle is protected under the Bald Eagle Protection Act. The Bald Eagle Protection Act protects the “take” of this species, as well as active nest sites. However, because the project site does not contain suitable nesting habitat for this species, effects related to the take of individual golden eagles or their nests are not anticipated.

As noted previously, there are observations of golden eagles foraging within project site grasslands in the winter. Therefore, this species may be affected by the loss of suitable wintering foraging habitat. Potential effects to grassland vegetation, as well as other habitat types present within the project site, are summarized in **Table 4.5-4**. This evaluation indicates that approximately 1,330 acres of suitable foraging habitat (annual grasslands) may be affected by proposed development. Neighboring habitat types, such as seasonal wetlands and vernal pools, may also contribute towards seasonal foraging opportunities for this species.

**TABLE 4.5-4
EFFECTS TO VEGETATION AND HABITATS – ALTERNATIVE A**

Habitat Type	Existing (Acres)	Affected (Acres)	Percent Affected
Annual Grassland	2,784.6	1,329.5	47.7%
Cottonwood Woodland	73.3	73.3	100.0%
Disturbed / Ruderal	87.3	53.3	61.1%
Drainage Ditch (Riverine)	2.5	1.3	52.0%
Lake / Pond (Lacustrine)	46.3	0.0	0.0%
Recreation / Landscaped	216.7	2.8	1.3%
Seasonal Wetland	52.6	13.9	26.4%
Stream Channel (Riverine)	24.5	8.1	33.1%
Urban/Developed	2,374.6	411.8	17.3%
Valley Foothill Riparian	14.4	0.0	0.0%
Vernal Pool	72.6	16.9	23.3%
Total	5,749.4	1,910.9	33.2%

SOURCE: ESA, 2012; Sacramento County, 2011

Under Alternative A, approximately 1,163 acres of annual grassland habitat would be preserved within the proposed Preserve and Riparian Buffer areas. This represents a grassland preservation ratio of 0.87:1. These areas contain the highest quality grasslands within the project site, would be preserved in perpetuity, and would be managed under a Wetlands Management Plan with goals to protect and enhance habitat conditions.

Because no suitable nesting habitat would be affected and the project site would provide high quality foraging habitat opportunities for this species in the proposed Preserve in perpetuity under Alternative A, a less-than-significant impact would result.

Impact 5.5: Effects to Western Spadefoot

Implementation of Alternative A would directly affect approximately 30.8 acres of seasonal wetland and vernal pool habitat, which may provide suitable breeding habitat for western spadefoot. This species has been recorded on the project site, including within vernal pools near Eagles Nest Road. Filling and grading suitable aquatic habitat could affect individuals if they are present. In addition, loss of suitable breeding habitat may limit breeding opportunities for this species within the action area. This is considered a significant, adverse impact. With recommended mitigation, impacts would be reduced to a less-than-significant level.

Mitigation Measure

Measure 5.5: Perform Pre-construction Surveys for Western Spadefoot. Prior to construction, a qualified biologist would conduct a survey for western spadefoot. The survey would include transecting all suitable habitat that may be affected by proposed activities and identifying suitable burrows that may be used for aestivation. Suitable burrows would be excavated using hand tools. If a spadefoot is found in a construction area, the biologist would move the spadefoot from the area to suitable habitat within the proposed Preserve.

Impact 5.6: Effects to Western Pond Turtle

Implementation of Alternative A would include the filling of approximately 9.4 acres of seasonal stream channels and drainage ditches, which may provide suitable aquatic habitat for western pond turtle. Draining and grading of suitable habitat during construction could directly affect western pond turtle individuals if they are present. This is considered a significant, adverse impact. With recommended mitigation, impacts would be reduced to a less-than-significant level.

Mitigation Measure

Measure 5.6: Perform Pre-construction Surveys for Western Pond Turtle. Prior to construction, a qualified biologist would conduct a survey for western pond turtles within 24 hours of the start of construction activities within 500 feet of streams, ditches, and other watercourses located within the proposed construction areas. If no individuals are identified then no additional measures are required. If a turtle is found in a proposed construction area, the biologist would move the turtle from the area to suitable habitat within the proposed Preserve. If a turtle becomes trapped during construction activities, a biologist would remove the turtle from the work area and place it in a suitable area of the proposed Preserve.

Impact 5.7: Effects to Nesting Special-Status Birds Species and Migratory Birds

As noted in **Section 3.5**, several species of state and local concern may nest in habitats that may be directly or indirectly affected by site development. Swainson's hawk, tri-colored blackbird, burrowing owls, white-tailed kites, short-eared owls and loggerhead shrike may be adversely affected if active nest sites are either removed or exposed to a substantial increase in noise or human presence during construction or use of the action area. Most birds are also protected by the Migratory Bird Treaty Act, and tri-colored blackbird, short-eared owl, western burrowing owl, northern harrier, and loggerhead shrike are considered species of special concern by the CDFG, while white-tailed kite are a fully protected species under CESA. Disturbance associated with the

proposed development and resulting in the loss or abandonment of an active nest would be considered a significant, adverse impact. With recommended mitigation, impacts would be reduced to a less-than-significant level.

Mitigation Measures

Measure 5.7a: Avoid Active Nesting Season. To avoid and minimize impacts to tree and shrub nesting species, the following measures would be implemented;

- If feasible, conduct all tree and shrub removal and grading activities during the non-breeding season (generally September 1 through January 31).
- If grading and tree removal activities are scheduled to occur during the breeding and nesting season (February 1 through August 31), pre-construction surveys would be performed prior to the start of proposed activities (refer to Measure 5.7b).

Measure 5.7b: Conduct Pre-construction Nesting Bird Surveys. If construction, grading or other project-related activities are schedule during the nesting season (February 1 to August 31), pre-construction surveys would be conducted by a qualified wildlife biologist to identify active Swainson's hawk nests within ½-mile of proposed construction activities and nests of other species within 250 feet of proposed construction activities. The surveys would be conducted no less than 14 days and no more than 30 days prior to the beginning of construction. The results of the survey would be emailed to CDFG at least three days prior to construction. Surveys would be conducted by a qualified biologist.

If the pre-construction surveys do not identify any nesting raptors or other nesting migratory bird species within areas potentially affected by construction activities, no further mitigation would be required. If the pre-construction surveys do identify nesting raptors or other nesting bird species within areas that may be affected by site construction, Measure 5.7c would be implemented.

Measure 5.7c: Avoid Active Bird Nest Sites. Should active nest sites be discovered within areas that may be affected by construction activities, additional measures would be implemented as described below.

Swainson's Hawk: If active nests are found, CDFG would be notified and project-related construction impacts would be avoided by establishment of appropriate no-work buffers to limit project-related construction activities near the nest site. The size of the no-work buffer zone would be determined in consultation with the CDFG, although a ¼ mile buffer would be used when possible. In consultation with CDFG, monitoring of nest activity by a qualified biologist may be required if the project-related construction activity has potential to adversely affect the nest or nesting behavior of the bird(s).

Burrowing Owls: If actively nesting burrowing owls are discovered in the action area during the breeding or nesting season (February 1 to August 31), CDFG would be notified. Where construction activities could directly affect burrowing owl survival or reproductive behavior, or where maintenance of a minimum 250-foot buffer zone around active burrowing owls is not practical, a qualified biologist would recommend site specific mitigation measures.

If proposed development would result in direct impacts to active burrows, passive relocation/exclusion would be allowed during the non-breeding season (September 1 to January 31). The CDFG would be consulted on current passive relocation methodology before relocation of owls is attempted.

Tricolored Blackbird: If a colony is identified within 500 feet of construction, the project proponent would consult with CDFG regarding suitable measures to avoid impacting breeding effort.

Short-eared Owl, Northern Harrier, White-Tailed Kite, Loggerhead Shrike, and other Migratory Birds: If active nests are found, construction impacts would be avoided by establishment of appropriate no-work buffers to limit project-related construction activities near the nest site. The size of the no-work buffer zone would be determined in consultation with the CDFG although a 500-foot would be used when possible.

Impact 5.8: Effects to Special-Status Wildlife Associated with Annual Grasslands

Construction activities under Alternative A would result in the loss of approximately 1,330 acres of annual grassland. These areas provide habitat for several special-status wildlife species, including American badger, burrowing owl, northern harrier, short-eared owl, white-tailed kite, and Swainson's hawk. Although grassland habitats are regionally abundant in central California, this portion of Sacramento County has experienced substantial losses of grassland habitat due to residential and commercial development. This project, when combined with adjacent existing and proposed development, has the potential to contribute to the fragmentation and loss of large tracts of grassland habitat.

CDFG and the County have developed mitigation guidance and programs to compensate for the loss of Swainson's hawk foraging habitat. The County's Swainson's Hawk Ordinance focuses on the loss of lands zoned for agricultural use, while CDFG guidance recommends a foraging habitat mitigation ratio that is dependent upon the development's distance to the nearest known Swainson's hawk nest site. Because the project site is not zoned for agricultural use, the CDFG guidance was evaluated to determine potential foraging habitat mitigation needs. Based upon this guidance and the nearest recorded nest site (CDFG, 2010), a mitigation ratio of 0.75:1 is recommended to reduce potential effects related to foraging habitat loss.

As noted in Impact 5.4, Alternative A includes the preservation of approximately 1,163 acres of annual grassland habitat. This amounts to a preservation ratio of 0.87:1, which exceeds CDFG mitigation guidance. The proposed Preserve is located adjacent to other areas of grassland habitat to the south of the project site, thereby reducing potential fragmentation effects. Based upon these factors, Alternative A would result in a less-than-significant impact related to the loss of annual grassland habitat for these species.

Impact 5.9: Effects to Special-Status Plants

Implementation of Alternative A would result in the direct loss of approximately 30.8 acres of suitable habitat for special-status plants associated with vernal pools. Three special-status plant species, Bogg's Lake hedge-hyssop, Ahart's dwarf rush, and legenera, have been identified in the action area during previous surveys (WRA, 2004). Under Alternative A, the vernal pools containing Bogg's Lake hedge-hyssop, Ahart's dwarf rush, and two of the four legenera populations would be preserved within the proposed Preserve. The remaining two known populations of legenera are found in pools that would be directly affected by the proposed University Village / Residential land use. Additional special-status species associated with seasonal wetlands, vernal pool, and

emergent marsh habitats that may be affected by Alternative A include slender Orcutt grass, Sacramento Orcutt grass, and Sanford's arrowhead. Although these plant species were not identified during previous surveys performed within the project site, suitable habitat is present and the lack of recent surveys warrants the completion of additional surveys prior to the start of construction. The potential loss of special-status plant populations is considered a significant, adverse impact. With recommended mitigation, impacts would be reduced to a less-than-significant level.

Mitigation Measures

Measure 5.9a: Perform Pre-construction Surveys for Special-Status Plants. Prior to construction, vegetated portions of the project site including wetland habitats would be surveyed by a qualified botanist for special-status plants following established CDFG *Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Natural Communities* (CDFG, 2009), which calls for protocol-level surveys during the appropriate flowering/identification period for each potentially affected species.

Measure 5.9b: Compensate for the Loss of Special-Status Plant Populations. Known populations of Bogg's Lake hedge-hyssop, Ahart's dwarf rush, and legenere would be protected within the Preserve. Alternative A would also directly affect two known populations of legenere, and may affect additional, undocumented populations of special-status plants. Measures to compensate for the loss of special status species include:

- Prepare a Mitigation and Monitoring Plan to relocate plants and/or seed banks or reintroduce new populations in suitable habitat and soil types within the on-site Preserve or at a CDFG or USFWS-approved off-site location;
- Restore or enhance suitable habitat within the Preserve.

Impact 5.10: Loss of Native Oaks and Other Protected Trees

Development activities under Alternative A may occur within the dripline of native oak trees or landmark trees, or may result in the direct removal of native oak trees or landmark trees. Work within the dripline of trees may cause permanent damage to the root system and the subsequent loss of the tree. The Sacramento County Tree Ordinance calls for avoidance of native oaks six-inches or greater in diameter at breast height (dbh), multi-trunk native oaks of 10-inches or greater dbh, or landmark trees. Impacts to protected oak or landmark trees are considered significant and adverse impact. With recommended mitigation, impacts would be reduced to a less-than-significant level.

Mitigation Measure

Measure 5.10: Protect Sensitive Tree Resources Adjacent to Construction Activities. Sensitive tree resources adjacent to construction activities may require additional protection. Where feasible, buffer zones should include a minimum one-foot-wide buffer zone outside the dripline for oaks and landmark trees. Grading within the driplines of oak trees would not be permitted unless specifically authorized by a Certified Arborist.

4.5.2 Alternative B – 2006 Conceptual Land Use Plan Alternative

Impact 5.1: Effects to Federally Listed Vernal Pool Species and Critical Habitat

Potential direct and indirect effects to suitable habitat for vernal pool species as a result of Alternative B development are summarized in **Figure 4.5-2** and **Table 4.5-5**.

**TABLE 4.5-5
EFFECTS TO HABITAT FOR VERNAL POOL SPECIES – ALTERNATIVE B**

Land Use	Direct Effects (Acres)	Indirect Effects (Acres)
<i>Airport Commercial</i>	5.51	0.79
Seasonal Wetland	3.10	0.17
Vernal Pools and Swales	2.41	0.62
<i>Commercial Development</i>	6.37	0.00
Seasonal Wetland	3.43	0.00
Vernal Pools and Swales	2.94	0.00
<i>Economic Development</i>	0.00	0.00
<i>Parks Recreation</i>	4.72	1.41
Seasonal Wetland	1.29	0.30
Vernal Pools and Swales	3.43	1.12
<i>Roadways and Infrastructure</i>	1.54	1.58
Seasonal Wetland	0.19	0.52
Vernal Pools and Swales	1.11	1.05
Channels and Streams	0.25	0.00
<i>Regional Sports Park</i>	3.12	0.01
Seasonal Wetland	2.63	0.01
Vernal Pools and Swales	0.20	0.00
Channels and Streams	0.29	0.00
<i>University Village/Residential</i>	10.12	1.92
Seasonal Wetland	3.98	0.14
Vernal Pools and Swales	5.96	1.79
Channels and Streams	0.18	0.00
Total	31.38¹	5.71¹

¹ Totals are approximate and subject to rounding.

SOURCE: ESA, 2012; Sacramento County, 2011

Development under Alternative B would result in the direct loss of approximately 31.38 acres of suitable habitat for vernal pool species. Of these acres, approximately 16.05 acres are classified as vernal pools or swales, with the remainder (15.33 acres) classified as seasonal wetlands and channels. Furthermore, development under Alternative B would also indirectly affect approximately 5.71 acres of habitat for vernal pool species located in the proposed Preserve, avoided areas and at Mather Airport.

In addition to these effects, up to 6.36 acres of critical habitat for vernal pool tadpole shrimp and fairy shrimp would be directly affected and up to 2.48 acres of critical habitat would be

indirectly affected. No critical habitat for slender Orcutt grass and Sacramento Orcutt grass would be affected by Alternative B.

The direct loss of suitable habitat for these species, including the direct take of species, represents a significant, adverse impact. In addition, the proximity of proposed activities to habitat for vernal pool species presents the possibility of secondary effects as described for Alternative A. Therefore, potential indirect effects to suitable habitat are also considered a significant, adverse impact.

Alternative B also proposes on-site preservation of habitat for vernal pool species, including 59.26 acres within an on-site Preserve and 6.43 acres within Riparian Buffer areas. This habitat would be protected in perpetuity. When combined, this represents a preservation ration of 1.7:1 for every acre directly and indirectly affected by activities associated with this alternative. As described previously, wetlands within the proposed Preserve would be preserved and managed in accordance with the Wetland Management Plan that is subject to final approval by the USACE, USFWS, CDFG and EPA. Nevertheless, without additional compensation and mitigation, the onsite loss of habitat for vernal pool species is considered significant and adverse. Even with recommended mitigation, impacts would remain significant and adverse.

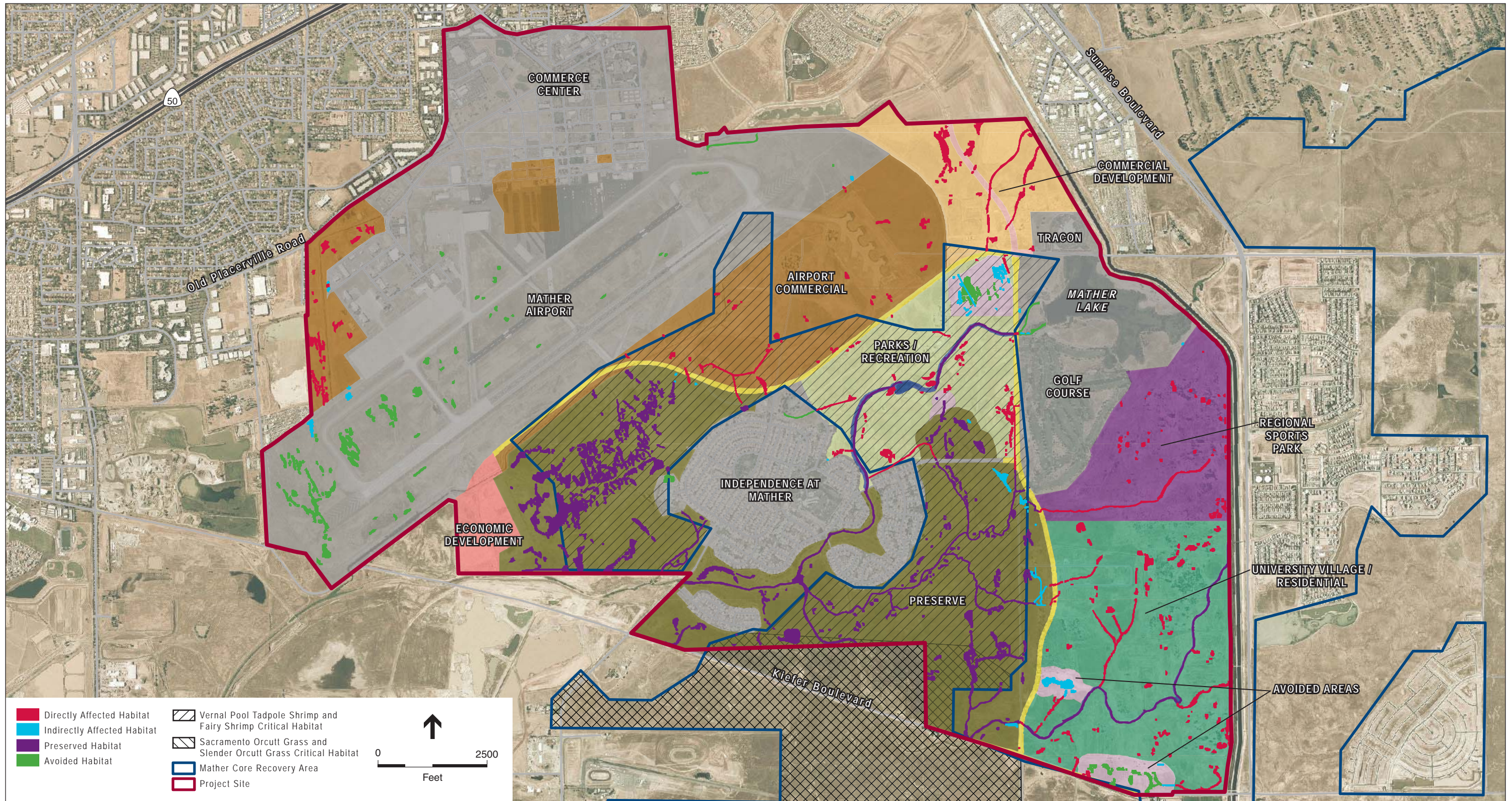
Mitigation Measures

Implement Mitigation Measures 5.1b: Use Best Management Practices (BMPs) to Provide Effective Erosion and Sediment Control, 5.1c: Conduct Worker Awareness Training (WEAP), 5.1d: Limit Project Access Routes/Staging Areas, and 5.1e: Protect Preserved and Avoided Habitats.

Measure 5.1a: Compensate for the Loss of Habitat for Vernal Pool Species. The project proponent would provide on-site habitat preservation in perpetuity and purchase habitat creation credits at an USACE and USFWS approved mitigation bank and/or restore/enhance habitat within the designated Preserve area upon USFWS approval to fully compensate for direct and indirect effects to habitat for federally listed vernal pool species. While final ratios would be determined in consultation with USFWS, it is estimated that compensation would be at a minimum 2:1 preservation ratio and 1:1 creation ratio for direct effects to habitat for vernal pool species (31.38 acres) and a 2:1 preservation ratio for indirect effects to habitat for vernal pool species (5.71 acres).

Alternative B would include 65.69 acres of on-site habitat for vernal pool species preservation and enhancement. Thus, Alternative B would provide on-site preservation for direct and indirect effects at a 1.7:1 ratio. This includes the preservation and avoidance of approximately 46.11 acres of vernal pool fairy shrimp and tadpole shrimp critical habitat and 4.19 acres of slender Orcutt and Sacramento Orcutt grass critical habitat.

To fully compensate for the direct loss of habitat for federally listed vernal pool species, the project proponent would purchase habitat creation credits at an USACE and USFWS approved mitigation bank and/or restore/enhance habitat within the designated Preserve areas upon USFWS approval at a minimum 1:1 ratio for direct effects to habitat for vernal pool species. In addition, the project proponent would purchase habitat preservation credits at an USACE and USFWS approved mitigation bank and/or restore/enhance habitat within the designated Preserve areas upon USFWS approval for the direct and indirect effects to habitat for vernal pool species. Combined with the on-site preservation, this is expected to result in a 2:1 preservation component for direct and indirect effects.



SOURCE: NAIP, 2009; and ESA, 2012

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Figure 4.5-2
Potential Effect to Habitat for Vernal Pool Species - Alternative B

Habitat compensation must occur prior to or concurrent with the development of each land use type. Compensation requirements for each land use are summarized in **Table 4.5-6**. As noted below, compensation for each land use must be approved by the USACE and USFWS prior to the initiation of construction activities.

Options for habitat compensation are described under Section 4.5.1, Measure 5.1a.

**TABLE 4.5-6
HABITAT COMPENSATION REQUIREMENTS BY LAND USE TYPE – ALTERNATIVE B**

Land Use	Habitat for Vernal Pool Species Compensation: 1:1 Creation (Acres)	Habitat for Vernal Pool Species Compensation: 0.3:1 Preservation (Acres)
Airport Commercial	5.51	1.89
Commercial Development	6.37	1.91
Economic Development	0.00	0.00
Parks Recreation	4.72	1.84
Roadways and Infrastructure	1.54	0.94
Regional Sports Park	3.12	0.94
University Village/Residential	10.12	3.61
Total	31.38	11.13

SOURCE: ESA, 2012; Sacramento County, 2011

Impact 5.2: Potential to Conflict with provisions of the USFWS Vernal Pool Recovery Plan

As discussed previously, the project site is located within the Mather Core Area of the *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (USFWS 2005) which is a Zone 1 core area having the highest priority for recovery. See Section 4.5.1, Impact Discussion 5.2 for details on the specific conservation goals of the Recovery Plan.

Alternative B includes substantial preservation of habitat for vernal pool species. Approximately 46.33 acres of suitable habitat for vernal pool species within the Mather Core Area would be protected in perpetuity within the action area (**Figure 4.5-2**) under this alternative. An additional 2.26 acres would be avoided by Alternative B through designation of “Avoided areas”. Avoided areas would not be disturbed during construction but no active management is currently proposed. Combined, there would be 48.59 acres that would be preserved or avoided within the Mather Core Area. This corresponds to 88 percent of the suitable habitat for vernal pool species within the Mather Core Area. However, some of this habitat may be affected by adjacent proposed land uses. **Table 4.5-7** summarizes the effects of Alternative B on suitable habitat for vernal pool species within the Mather Core Area.

**TABLE 4.5-7
EFFECTS TO MATHER RECOVERY AREA HABITAT – ALTERNATIVE B**

Habitat Type	Total in Mather Recovery Area (Acres)	Directly Affected (Acres)	Potentially Indirectly Affected (Acres)	Preserved and Avoided Habitat (Acres) / Percent¹	Preserved and Avoided Habitat and not Indirectly Impacted (Acres) / Percent²
Vernal Pools and Swales	41.21	4.51	1.87	36.70 / 89%	34.83 / 85%
Seasonal Wetlands	8.60	1.69	0.61	6.92 / 78%	6.11 / 71%
Ephemeral and Intermittent Channels	5.33	0.16	0.00	5.17 / 97%	5.17 / 97%
Total	55.14	6.36	2.48	48.59 / 88%	46.11 / 84%

1 Percent of habitat within the Mather Core Area that falls within proposed Preserve or Riparian Buffer land uses and is not directly impacted.

2 This amount assumes all potentially indirectly affected habitats (habitat for vernal pool species within 250 feet of proposed land disturbance) would be affected.

SOURCE: ESA, 2012; Sacramento County, 2011

Alternative B would preserve suitable habitat for those species targeted for protection within the Mather Core Area, with the majority of that being high functioning habitat for vernal pool species. Furthermore, some of this habitat is expected to be restored and/or enhanced, thereby increasing habitat suitability for these species. Nevertheless, without mitigation, Alternative B would conflict with the goals of the recovery plan, as it would fail to protect at least 85 percent of the existing habitat for vernal pool species within the Mather Core Area. Approximately 0.8 acres of additional habitat would need to be preserved within the Mather Core Area to meet the goals of the recovery plan. This is a significant and adverse impact. In addition, while mitigation is recommended to compensate for this impact (see below), the feasibility of this measure cannot be demonstrated at this time as there are no USACE or USFWS approved mitigation banks within the Mather Core Area at this time. Therefore, this impact would remain significant and adverse.

Mitigation Measures

Measure 5.2: Preserve, Restore or Enhance Additional Habitat for Vernal Pool Species. Additional habitat for vernal pool species (approximately 0.8 acres) would be preserved or restored within the Mather Core Area to meet the 85% minimum goals of the recovery plan. Preservation or restoration may occur within or outside of the project site, but must occur within the designated boundaries of the Mather Core Area. Preservation would take the form of either purchasing mitigation credits from a USACE and USFWS approved mitigation bank or through conservation easements and an endowment of preservation lands within the Mather Core Area. As noted above, there are no USFWS and USACE approved mitigation banks that have available credits within the Mather Core Area. Proposed restoration plans, including associated land use restrictions, would require approval from the USFWS and USACE. Proof of preservation, restoration or enhancement must be provided to the USACE and USFWS prior to project construction.

Impact 5.3: Effects to Valley Elderberry Longhorn Beetle (VELB)

Implementation of Alternative B has the potential to adversely affect this species by adversely affecting suitable elderberry shrubs. Because these shrubs represent potential habitat for all stages of VELB's life cycle, the removal or degradation of elderberry shrubs may adversely affect VELB and limit management opportunities for their recovery. This is considered a significant and adverse impact. With recommended mitigation, impacts would be reduced to a less-than-significant level.

Mitigation Measure

Implement Mitigation Measure 5.3: Mitigate for Impacts to VELB and its Habitat.

Impact 5.4: Effects to Golden Eagle

This species may be affected by the loss of suitable wintering foraging habitat. Potential effects to grassland vegetation, as well as all other habitat types present within the project site, are summarized in **Table 4.5-8**. This evaluation indicates that approximately 1,430 acres of suitable foraging habitat (annual grasslands) would be affected by proposed development. Neighboring habitat types, such as seasonal wetlands and vernal pools, may also contribute towards seasonal foraging opportunities for this species.

**TABLE 4.5-8
EFFECTS TO VEGETATION AND HABITATS – ALTERNATIVE B**

Habitat Type	Existing (Acres)	Affected (Acres)	Percent Affected
Annual Grassland	2,784.6	1,430.0	51.4%
Cottonwood Woodland	73.3	73.3	100.0%
Disturbed / Ruderal	87.3	53.3	61.1%
Drainage Ditch (Riverine)	2.5	1.3	52.0%
Lake / Pond (Lacustrine)	46.3	0.0	0.0%
Recreation / Landscaped	216.7	2.8	1.3%
Seasonal Wetland	52.6	14.5	27.6%
Stream Channel (Riverine)	24.5	8.2	33.5%
Urban/Developed	2,374.6	412.2	17.4%
Valley Foothill Riparian	14.4	0.0	0.0%
Vernal Pool	72.6	15.7	21.6%
Total	5,749.4	2,012.2	35.0%

SOURCE: ESA, 2012; Sacramento County, 2011

Under Alternative B, approximately 977 acres of annual grassland habitat would be preserved within the proposed Preserve and Riparian Buffer areas. This represents a grassland preservation ratio of 0.68:1. These areas contain the highest quality grasslands within the project site, would be preserved in perpetuity, and would be managed under a Wetlands Management Plan with goals to enhance habitat conditions.

Because no suitable nesting habitat would be affected and the project site would provide high quality foraging habitat opportunities for this species in perpetuity under Alternative B, a less-than-significant impact would result.

Impact 5.5: Effects to Western Spadefoot

Implementation of Alternative B would include filling approximately 30.2 acres of seasonal wetland and vernal pool habitat, which may provide suitable breeding habitat for this species. Filling and grading suitable aquatic habitat during construction could affect individuals if they are present. In addition, loss of suitable breeding may limit breeding opportunities for this species within the action area. This is considered a significant and adverse impact. With recommended mitigation, impacts would be reduced to a less-than-significant level.

Mitigation Measure

Implement Mitigation Measure 5.5a: Perform Pre-construction Surveys for Western Spadefoot.

Impact 5.6: Effects to Western Pond Turtle

Implementation of Alternative B would include filling approximately 9.5 acres of seasonal stream channels and drainage ditches, which may provide suitable nesting habitat for western pond turtle. Draining and grading of suitable habitat during construction directly affect western pond turtle individuals if they are present. This is considered a significant and adverse impact. With recommended mitigation, impacts would be reduced to a less-than-significant level.

Mitigation Measure

Implement Mitigation Measure 5.6: Perform Pre-construction Surveys for Western Pond Turtle.

Impact 5.7: Effects to Nesting Special-Status Birds Species and Migratory Birds

Alternative B may impact nesting birds, including Swainson's hawk, tri-colored blackbird, burrowing owl, white-tailed kite, short-eared owl and loggerhead shrike. These species may be adversely affected if active nest sites are either directly removed or exposed to a substantial increase in noise or human presence during construction or use of the action area. Disturbance associated with the proposed development and resulting in the loss or abandonment of an active nest would be considered a significant and adverse impact. With recommended mitigation, impacts would be reduced to a less-than-significant level.

Mitigation Measures

Implement Mitigation Measures 5.7a: Avoid Active Nesting Season, 5.7b: Conduct Pre-construction Nesting Bird Surveys, and 5.7c: Avoid Active Bird Nest Sites.

Impact 5.8: Effects to Special-Status Wildlife Associated with Annual Grasslands

Construction activities under Alternative B would result in the loss of approximately 1,430 acres of annual grassland. These areas provide habitat for several special-status wildlife species, including

American badger, burrowing owl, northern harrier, short-eared owl, white-tailed kite, and Swainson's hawk.

As noted in Impact 5.4, Alternative B includes the preservation of approximately 977 acres of annual grassland habitat. It further avoids another 84 acres of grasslands within designated Avoided areas. This amounts to a preservation ratio of 0.74:1, which is substantially similar to the State recommended mitigation ratio of 0.75:1. The Preserve and Avoided areas also contain high-quality habitat and are located adjacent to other areas of grassland habitat to the south of the project site, thereby reducing potential fragmentation effects. Based upon these factors, Alternative B would result in a less-than-significant impact for these species.

Impact 5.9: Effects to Special-Status Plants

Implementation of Alternative B would result in the direct loss of approximately 30.2 acres of suitable habitat for special-status plants associated with vernal pools. Please see Section 4.5.1, Impact Discussion 5.9 for details on plant species populations. The potential loss of special-status plant populations is considered a significant and adverse impact. With recommended mitigation, impacts would be reduced to a less-than-significant level.

Mitigation Measures

Implement Mitigation Measures 5.9a: Perform Pre-construction Surveys for Special-Status Plants and 5.9b: Compensate for the Loss of Special-Status Plant Populations.

Impact 5.10: Loss of Native Oaks and Other Protected Trees

Please see Section 4.5.1, Impact Discussion 5.10 for details on potential impacts to native oaks and other protected trees. The impact to protected oaks or landmark trees is considered a significant and adverse impact. With recommended mitigation, impacts would be reduced to a less-than-significant level.

Mitigation Measure

Implement Mitigation Measure 5.10: Protect Sensitive Tree Resources Adjacent to Construction Activities.

4.5.3 Alternative C – Multiple Preserves Alternative

Impact 5.1: Effects to Federally Listed Vernal Pool Species and Critical Habitat

Alternative C would result in direct and indirect effects to suitable habitat for these species as well as the known populations. Potential direct and indirect effects to suitable habitat for vernal pool species as a result of Alternative C development are summarized in **Table 4.5-9** and **Figure 4.5-3**.

Development under Alternative C would result in the direct loss of approximately 25.11 acres of suitable habitat for vernal pool species. Of these acres, approximately 10.79 acres are classified as vernal pools or swales, with the remainder (14.32 acres) classified as seasonal wetlands and

**TABLE 4.5-9
EFFECTS TO HABITAT FOR VERNAL POOL SPECIES – ALTERNATIVE C**

Land Use	Direct Effects (Acres)	Indirect Effects (Acres)
<i>Airport Commercial</i>	5.51	0.79
Seasonal Wetland	3.10	0.17
Vernal Pools and Swales	2.41	0.62
<i>Commercial Development</i>	3.67	0.00
Seasonal Wetland	3.21	0.00
Vernal Pools and Swales	0.46	0.00
<i>Economic Development</i>	0.00	0.00
<i>Parks Recreation</i>	1.34	1.04
Seasonal Wetland	0.51	0.21
Vernal Pools and Swales	0.83	0.82
<i>Roadways and Infrastructure</i>	1.36	3.38
Seasonal Wetland	0.17	0.81
Vernal Pools and Swales	0.93	2.57
Channels and Streams	0.26	0.00
<i>Regional Sports Park</i>	3.12	0.01
Seasonal Wetland	2.63	0.01
Vernal Pools and Swales	0.20	0.00
Channels and Streams	0.29	0.00
<i>University Village/Residential</i>	10.12	1.95
Seasonal Wetland	3.98	0.14
Vernal Pools and Swales	5.96	1.81
Channels and Streams	0.18	0.00
Total	25.11¹	7.16¹

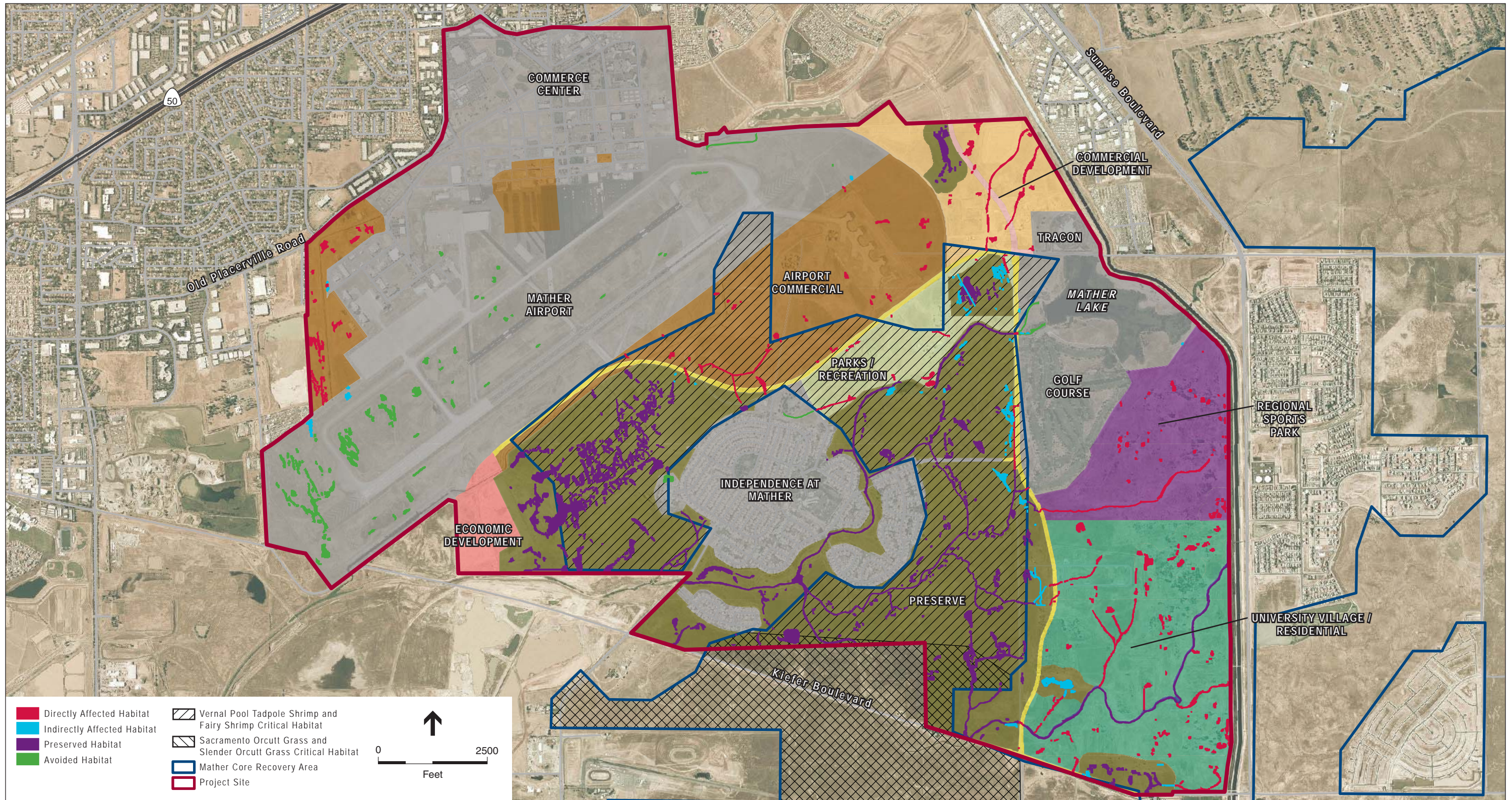
¹ Totals are approximate and subject to rounding.

SOURCE: ESA, 2012; Sacramento County, 2011

channels. Furthermore, development under Alternative C would also indirectly affect approximately 7.16 acres of habitat for vernal pool species located in the proposed Preserves and at Mather Airport.

In addition to these effects, up to 3.27 acres of critical habitat for vernal pool tadpole shrimp and fairy shrimp would be directly affected and up to 4.06 acres of critical habitat would be indirectly affected. No critical habitat for slender Orcutt grass and Sacramento Orcutt grass would be affected by Alternative C.

As with Alternatives A and B, the direct loss of suitable habitat for these species, including the direct take of species, represents a significant, adverse impact. In addition, the proximity of proposed activities to habitat for vernal pool species presents the possibility of secondary effects as described for Alternatives A and B. Therefore, potential indirect effects to suitable habitat are also considered a significant, adverse impact.



SOURCE: NAIP, 2009; and ESA, 2012

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Figure 4.5-3
Potential Effect to Habitat for Vernal Pool Species - Alternative C

Alternative C also proposes on-site preservation of habitat for vernal pool species, including 74.19 acres within on-site Preserves and 3.62 acres within Riparian Buffer areas. This habitat would be protected in perpetuity. When combined, this represents a preservation ration of 2.4:1 for every acre directly and indirectly affected by activities associated with this alternative. As described previously, wetlands within the proposed Preserves would be preserved and managed in accordance with the Wetland Management Plan that is subject to final approval by the USACE, USFWS, CDFG and EPA. Nevertheless, without additional compensation and mitigation, the onsite loss of habitat for vernal pool species is considered significant and adverse. With recommended mitigation, impacts would be reduced to a less-than-significant level.

Mitigation Measures

Implement Mitigation Measures 5.1b: Use Best Management Practices (BMPs) to Provide Effective Erosion and Sediment Control, 5.1c: Conduct Worker Awareness Training (WEAP), 5.1d: Limit Project Access Routes/Staging Areas, and 5.1e: Protect Preserved and Avoided Habitats.

Measure 5.1a: Compensate for the Loss of Habitat for Vernal Pool Species. The project proponent would provide on-site habitat preservation in perpetuity and purchase habitat creation credits at an USACE and USFWS approved mitigation bank and/or restore/enhance habitat within the designated Preserve areas upon USFWS approval to fully compensate for direct and indirect effects to habitat for federally listed vernal pool species. While final ratios would be determined in consultation with USFWS, it is estimated that compensation would be at a minimum 2:1 preservation ratio and 1:1 creation ratio for direct effects to habitat for vernal pool species (25.11 acres) and a 2:1 preservation ratio for indirect effects to habitat for vernal pool species (7.30 acres).

Alternative C would include 77.80 acres of on-site habitat for vernal pool species preservation and enhancement. Thus, Alternative C would provide on-site preservation for direct and indirect effects at a 2.4:1 ratio. This includes the preservation of approximately 51.67 acres of vernal pool fairy shrimp and tadpole shrimp critical habitat and 4.19 acres of slender Orcutt and Sacramento Orcutt grass critical habitat. The level of restoration and enhancement activities proposed by the Wetland Management Plan has not yet been quantified.

To fully compensate for the direct loss of habitat for federally listed vernal pool species, including up to 3.27 acres of designated critical habitat, the project proponent would purchase habitat creation credits at an USACE and USFWS approved mitigation bank and/or restore/enhance habitat within the designated Preserve areas upon USFWS approval at a minimum 1:1 ratio for direct effects to habitat for vernal pool species (25.11 acres). No additional preservation acreage is proposed under this alternative, as it would provide on-site preservation at a 2.4:1 ratio.

Habitat compensation must occur prior to or concurrent with the development of each land use type. Compensation requirements for each land use are summarized in **Table 4.5-10**. As noted below, compensation for each land use must be approved by the USACE and USFWS prior to the initiation of construction activities.

Options for habitat compensation are described under Section 4.5.1, Measure 5.1a.

**TABLE 4.5-10
HABITAT COMPENSATION REQUIREMENTS BY LAND USE TYPE – ALTERNATIVE C**

Land Use	Habitat for Vernal Pool Species Compensation: 1:1 Creation (Acres)
Airport Commercial	5.51
Commercial Development	3.67
Economic Development	0.00
Parks Recreation	1.34
Roadways and Infrastructure	1.36
Regional Sports Park	3.12
University Village/Residential	10.12
Total	25.11

SOURCE: ESA, 2012; Sacramento County, 2011

Impact 5.2: Potential to Conflict with provisions of the USFWS Vernal Pool Recovery Plan

As discussed previously, the project site is located within the Mather Core Area of the *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (USFWS 2005), which is a Zone 1 core area having the highest priority for recovery.

Approximately 51.67 acres of suitable habitat for vernal pool species within the Mather Core Area would be protected in perpetuity within the project site under Alternative C (**Figure 4.5-3**). This corresponds to 94 percent of the suitable habitat for vernal pool species within the Mather Core Area. However, some of this habitat may be indirectly affected by construction and/or operation of adjacent proposed land uses. **Table 4.5-11** summarizes the effects of Alternative C on suitable habitat for vernal pool species within the Mather Core Area.

**TABLE 4.5-11
EFFECTS TO MATHER RECOVERY AREA HABITAT – ALTERNATIVE C**

Habitat Type	Total in Mather Recovery Area (Acres)	Directly Affected (Acres)	Potentially Indirectly Affected (Acres)	Preserved Habitat (Acres) / Percent¹	Preserved Habitat and not Indirectly Impacted (Acres) / Percent²
Vernal Pools and Swales	41.21	2.04	3.09	39.18 / 97%	36.08 / 89%
Seasonal Wetlands	8.60	1.07	0.96	7.32 / 87%	6.36 / 75%
Ephemeral and Intermittent Channels	5.33	0.16	0	5.17 / 98%	5.17 / 98%
Total	55.14	3.27	4.06	51.67 / 94%	47.62 / 86%

1 Percent of habitat within the Mather Core Area that falls within proposed Preserve or Riparian Buffer land uses.

2 This amount assumes all potentially indirectly affected habitats (habitat for vernal pool species within 250 feet of proposed land disturbance) would be affected.

SOURCE: ESA, 2012; Sacramento County, 2011

As shown in **Table 4.5-11**, Alternative C would protect suitable habitat for those species targeted for protection within the Mather Core Area, with the majority of that being high quality habitat

for vernal pool species. Furthermore, some of this habitat is expected to be restored and/or enhanced, thereby increasing habitat suitability for these species. Based on this evaluation, Alternative C would be consistent with the goals of the USFWS recovery plan for vernal pool species as it protects at least 85% of the habitat for vernal pool species within the Mather Core Area. Thus, this impact is considered less-than-significant.

Impact 5.3: Effects to Valley Elderberry Longhorn Beetle

Implementation of Alternative C has the potential to adversely affect this species by adversely affecting suitable elderberry shrubs. Because these shrubs represent potential habitat for all stages of VELB's life cycle, the removal or degradation of elderberry shrubs may adversely affect VELB and limit management opportunities for their recovery. This is considered a significant and adverse impact. With recommended mitigation, impacts would be reduced to a less-than-significant level.

Mitigation Measure

Implement Mitigation Measure 5.3: Mitigate for Impacts to VELB and its Habitat.

Impact 5.4: Effects to Golden Eagle

This species may be affected by the loss of suitable wintering foraging habitat. Potential effects to grassland vegetation, as well as all other habitat types present within the project site, are summarized in **Table 4.5-12**. This evaluation indicates that approximately 1,263 acres of suitable foraging habitat (annual grasslands) would be affected by activities associated with this alternative. Neighboring habitat types, such as seasonal wetlands and vernal pools, may also contribute towards seasonal foraging opportunities for this species.

**TABLE 4.5-12
EFFECTS TO VEGETATION AND HABITATS – ALTERNATIVE C**

Habitat Type	Existing (Acres)	Affected (Acres)	Percent Affected
Annual Grassland	2,784.6	1,262.9	45.3%
Cottonwood Woodland	73.3	73.3	100%
Disturbed / Ruderal	87.3	53.3	61.1%
Drainage Ditch (Riverine)	2.5	1.3	52.0%
Lake / Pond (Lacustrine)	46.3	0.0	0.0%
Recreation / Landscaped	216.7	2.8	1.3%
Seasonal Wetland	52.6	13.5	25.7%
Stream Channel (Riverine)	24.5	8.1	33.1%
Urban/Developed	2,374.6	411.7	17.3%
Valley Foothill Riparian	14.4	0.0	0.0%
Vernal Pool	72.6	10.8	14.9%
Total	5,749.4	1,837.7	32.0%

SOURCE: ESA, 2012; Sacramento County, 2011

Under Alternative C, approximately 1,229 acres of annual grassland habitat would be preserved within the proposed Preserves and Riparian Buffer areas. This represents a grassland preservation ratio of 0.97:1. These areas contain the highest quality grasslands within the project site, would be preserved in perpetuity, and would be managed under a Wetlands Management Plan with goals to enhance habitat conditions.

Because no suitable nesting habitat would be affected and the project site would provide high quality foraging habitat opportunities for this species in perpetuity under Alternative C, a less-than-significant impact would result.

Impact 5.5: Effects to Western Spadefoot

Implementation of Alternative C would include filling approximately 24.3 acres of seasonal wetland and vernal pool habitat, which may provide suitable breeding habitat for this species. Filling and grading suitable aquatic habitat during construction could affect individuals if they are present. In addition, loss of suitable breeding may limit breeding opportunities for this species within the action area. This is considered a significant and adverse impact. With recommended mitigation, impacts would be reduced to a less-than-significant level.

Mitigation Measure

Implement Mitigation Measure 5.5a: Perform Pre-construction Surveys for Western Spadefoot.

Impact 5.6: Effects to Western Pond Turtle

Implementation of Alternative C would include filling approximately 9.4 acres of seasonal stream channels and drainage ditches, which may provide suitable nesting habitat for western pond turtle. Draining and grading of suitable habitat during construction directly affect western pond turtle individuals if they are present. This is considered a significant and adverse impact. With recommended mitigation, impacts would be reduced to a less-than-significant level.

Mitigation Measure

Implement Mitigation Measure 5.6: Perform Pre-construction Surveys for Western Pond Turtle.

Impact 5.7: Effects to Nesting Special-Status Birds Species and Migratory Birds

Alternative C may impact nesting birds, including Swainson's hawk, tri-colored blackbird, burrowing owl, white-tailed kite, short-eared owl and loggerhead shrike. These species may be adversely affected if active nest sites are either directly removed or exposed to a substantial increase in noise or human presence during construction or use of the action area. Disturbance associated with the proposed development and resulting in the loss or abandonment of an active nest would be considered a significant and adverse impact. With recommended mitigation, impacts would be reduced to a less-than-significant level.

Mitigation Measures

Implement Mitigation Measures 5.7a: Avoid Active Nesting Season, 5.7b: Conduct Pre-construction Nesting Bird Surveys, and 5.7c: Avoid Active Bird Nest Sites.

Impact 5.8: Effects to Special-Status Wildlife Associated with Annual Grasslands

Construction activities under Alternative C would result in the loss of approximately 1,263 acres of annual grassland. These areas provide habitat for several special-status wildlife species, including American badger, burrowing owl, northern harrier, short-eared owl, white-tailed kite, and Swainson's hawk.

As noted in Impact 5.4, Alternative C includes the preservation of approximately 1,229 acres of annual grassland habitat. This amounts to a preservation ratio of 0.97:1, which exceeds CDFG mitigation guidance for Swainson's hawk foraging habitat. Based upon these factors, Alternative C would result in a less-than-significant impact for these species.

Impact 5.9: Effects to Special-Status Plants

Implementation of Alternative C would result in the direct loss of approximately 24.3 acres of suitable habitat for special-status plants associated with vernal pools. Please see Section 4.5.1, Impact Discussion 5.9 for details on plant species populations. The potential loss of special-status plant populations is considered a significant and adverse impact. With recommended mitigation, impacts would be reduced to a less-than-significant level.

Mitigation Measures

Implement Mitigation Measures 5.9a: Perform Pre-construction Surveys for Special-Status Plants and 5.9b: Compensate for the Loss of Special-Status Plant Populations.

Impact 5.10: Loss of Native Oaks and Other Protected Trees

Please see Section 4.5.1, Impact Discussion 5.10 for details on potential impacts to native oaks and other protected trees. The impact to protected oaks or landmark trees is considered a significant and adverse impact. With recommended mitigation, impacts would be reduced to a less-than-significant level.

Mitigation Measure

Implement Mitigation Measure 5.10: Protect Sensitive Tree Resources Adjacent to Construction Activities.

4.5.4 Alternative D – No Permit Alternative

Impact 5.1: Effects to Federally Listed Vernal Pool Species and Critical Habitat

Alternative D would not directly affect suitable habitat for these species. Proposed aggregate mining has the potential to indirectly affect habitat for federally listed vernal pool species. Any mining in the project site would require permits from Sacramento County (including compliance with the

California Environmental Quality Act [CEQA]) and the USFWS under Section 10 of the Endangered Species Act. This may include preparation of a Habitat Conservation Plan to address the incidental take of listed species.

While no fill of wetlands would occur under this alternative, vernal pools would continue to be subject to encroachment by invasive weed species and illegal activities such as dumping and off-road vehicle use. While these activities are detrimental to the long term success and recovery of these species, it is anticipated that habitat conditions within the project site would largely remain unchanged from current conditions and thus impacts would be less than significant.

Impact 5.2: Potential to Conflict with provisions of the USFWS Vernal Pool Recovery Plan

Because Alternative D would not result in the loss of any habitat within the Mather Core Area, no impact would result.

Impact 5.3: Effects to Valley Elderberry Longhorn Beetle and Golden Eagle

As described previously, future development under Alternative D may include infill development and aggregate mining. These activities would not result in any direct or indirect effects to VELB or golden eagle. No impact would result.

Impacts 5.4 to 5.8: Effects to Special-Status Species and Migratory Birds

As described previously, future development under Alternative D may include infill development and aggregate extraction. These activities would not result in any direct effects to western spadefoot, western pond turtle, American badger, northern harrier, Swainson's hawk, tri-colored blackbird, burrowing owl, white-tailed kite, short-eared owl, loggerhead shrike, or migratory birds. While aggregate mining may indirectly affect habitat for vernal pool species in the project site, any future mining activities would require permits from Sacramento County, and subsequent analysis and mitigation under CEQA. A less-than-significant impact would result.

Impact 5.9: Effects to Special-Status Plants

As described previously, future development under Alternative D may include infill development and aggregate mining. These activities would not result in any direct effects to Bogg's Lake hedge-hyssop, Ahart's dwarf rush, legenera, slender Orcutt grass, Sacramento Orcutt grass, and Sanford's arrowhead. While aggregate mining may indirectly affect habitat for vernal pool species in the project site, any future mining activities would require permits from Sacramento County, and subsequent analysis and mitigation under CEQA. A less-than-significant impact would result.

Impact 5.10: Loss of Native Oaks and Other Protected Trees

Future development under Alternative D, including infill development and aggregate mining, are unlikely to directly impacted protected tree resources. Furthermore, any effects to protected tree resources would be subject to protection per local ordinances, and a less-than-significant impact would result.

References

- California Department of Fish and Game (CDFG). 2009. Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Natural Communities. Sacramento, CA. November 24, 2009.
- California Department of Fish and Game (CDFG). 2010. California Natural Diversity Database (CNDDDB) Rarefind computer program (Version 3.1.0). California Department of Fish and Game, Biogeographic Data Branch. Sacramento, CA. Commercial Version dated: May 1, 2010. Data will expire on November 1, 2010. Accessed September 8, 2010.
- Sacramento County, 2011. Mather Field Wetland Delineation Re-Verification 2011 and associated GIS data files. Department of Environmental Review and Assessment. Sacramento, CA.
- U.S. Fish and Wildlife Service (USFWS) 1996a. Programmatic Formal Endangered Species Act Consultation on Issuance of 404 Permits for Projects with Relatively Small Effects on Listed Vernal Pool Crustaceans Within the Jurisdiction of the Sacramento Field Office, California. Sacramento, CA.
- U.S. Fish and Wildlife Service (USFWS). 1996b. Programmatic Formal Consultation Permitting Projects with Relatively Small Effects on the Valley Elderberry Longhorn Beetle within the Jurisdiction of the Sacramento Field Office. Sacramento, CA. September 19, 1996.
- U.S. Fish and Wildlife Service (USFWS). 1999. Conservation Guidelines for the Valley Elderberry Longhorn Beetle. Sacramento, CA. Available online at: http://www.fws.gov/sacramento/es/documents/velb_conservation.htm
- U.S. Fish and Wildlife Service (USFWS). 2005. Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon. Region 1. Portland, Oregon.
- Wetlands Research Associates, Inc. (WRA), 2004. Mather Field Natural Resource Assessment: Phases I and II. San Rafael, California. Prepared for Sacramento County.

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4.6 Aquatic Resources

4.6.1 Alternative A – Applicant’s Preferred Alternative

Impact 6.1: Effects to Wetlands and Other Waters of the U.S.

Approximately 40.25 acres of jurisdictional waters of the U.S. within the project site would be filled under Alternative A. Impacted features would include approximately 16.93 acres of vernal pools and swales, 13.95 acres of seasonal wetland, 1.26 acres of drainage ditches, and 8.11 acres of ephemeral and intermittent stream channels. Unlike impacts calculated for vernal pool habitats (see Section 4.5), only those jurisdictional areas that are proposed for fill under Alternative A are included in these values. Indirect impacts to jurisdictional waters of the U.S. are discussed in detail in Section 4.3 (Hydrology, Water Quality, and Flooding) and Section 4.5 (Biological Resources), as well as Mitigation Measures 5.1b and 5.1c. Potential effects associated with each land use under Alternative A are summarized in **Table 4.6-1** and **Figure 4.6-1**.

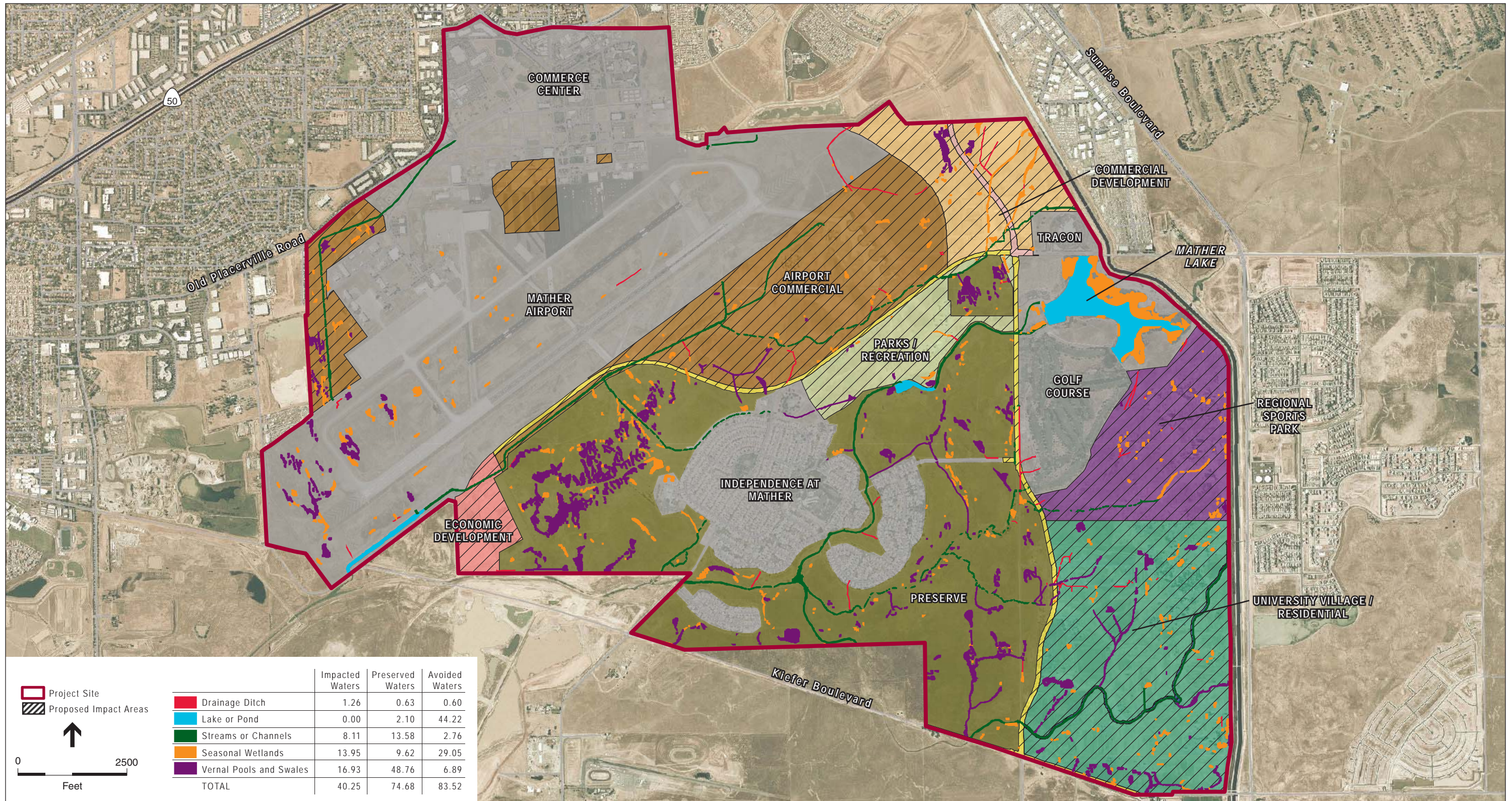
The U.S. Army Corps of Engineers (USACE) considers the functions and services of the wetlands and other waters that would be eliminated or degraded, the functions and services of waters on proposed mitigation sites, and the likelihood of success of proposed mitigation when considering compensatory mitigation for impacts. The purpose of compensatory mitigation is to develop long-term self-sustaining waters that are not dependent on human intervention after the establishment period. In general, the required compensatory mitigation should be located within the same watershed as the impact site, and should be located where it is most likely to successfully replace lost functions and services. Compensatory mitigation may be achieved through restoration, enhancement, establishment, and in certain circumstances preservation. Restoration is generally favored because the likelihood of success is greater, the impacts to potentially ecologically important uplands are reduced compared to establishment, and the potential gains in terms of aquatic resource functions are greater, compared to enhancement and preservation (33 CFR §332.3).

The amount of required compensatory mitigation must be, to the extent practical, sufficient to replace lost aquatic resource functions. In cases where appropriate functional or condition assessment methods or other suitable metrics are available, these methods should be used where practicable to determine how much compensatory mitigation is required. If a functional or condition assessment or other suitable metric is not used, a minimum one-to-one acreage or linear foot compensation ratio is used. A mitigation ratio greater than one-to-one may be necessary to account for the method of compensatory mitigation (e.g., preservation), the likelihood of success, differences between the functions lost at the impact site and the functions expected to be produced by the compensatory mitigation project, temporal losses of aquatic resource functions, the difficulty of restoring or establishing the desired aquatic resource type and functions, and/or the distance between the affected aquatic resource and the compensation site (33 CFR §332.3). Alternative A includes on-site preservation of approximately 74.68 acres of wetlands and other waters of the U.S. within on-site Preserve and Riparian Buffer areas. On site preservation is summarized in **Table 4.6-2**, while **Table 4.6-3** summarizes the preservation ratio for each impacted water type.

**TABLE 4.6-1
PROPOSED EFFECTS TO WATERS OF THE U.S. - ALTERNATIVE A**

Proposed Land Use	Type Affected	Acres Affected¹
Airport Commercial	Drainage Ditch	0.31
	Channels and Streams	5.67
	Seasonal Wetland	3.05
	Vernal Pools and Swales	3.23
Subtotal		12.26
Commercial Development	Drainage Ditch	0.22
	Channels and Streams	0.62
	Seasonal Wetland	3.40
	Vernal Pools and Swales	2.94
Subtotal		7.18
Economic Development	Drainage Ditch	0.006
	Channels and Streams	0.367
Subtotal		0.37
Parks Recreation	Drainage Ditch	0.01
	Channels and Streams	0.54
	Seasonal Wetland	0.54
	Vernal Pools and Swales	0.83
Subtotal		1.92
Roadways/Infrastructure	Drainage Ditch	0.19
	Channels and Streams	0.32
	Seasonal Wetland	0.14
	Vernal Pools and Swales	0.16
Subtotal		0.80
Regional Sports Park	Drainage Ditch	0.27
	Channels and Streams	0.29
	Seasonal Wetland	2.63
	Vernal Pools and Swales	0.20
Subtotal		3.39
University Village/ Residential	Drainage Ditch	0.26
	Channels and Streams	0.30
	Seasonal Wetland	4.19
	Vernal Pools and Swales	9.58
Subtotal		14.33
TOTAL		40.25

¹ Totals are approximate and subject to rounding.
SOURCE: ESA, 2012; Sacramento County, 2011.



SOURCE: NAIP, 2009; and ESA, 2012

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Figure 4.6-1
Potentially Affected Waters of the U.S. – Alternative A

**TABLE 4.6-2
PROPOSED ON-SITE PRESERVATION - ALTERNATIVE A**

Proposed Land Use	Type Preserved	Acres Preserved¹
Preserve	Drainage Ditch	0.63
	Open Water	2.10
	Channels and Streams	10.10
	Seasonal Wetland	9.61
	Vernal Pools and Swales	48.74
Subtotal		71.18
Riparian Buffer	Channels and Streams	3.48
	Seasonal Wetland	0.001
	Vernal Pools and Swales	0.01
Subtotal		3.50
TOTAL:		74.68

¹ Totals are approximate and subject to rounding.

SOURCE: ESA, 2012; Sacramento County, 2011.

**TABLE 4.6-3
PROPOSED PRESERVATION TO IMPACT RATIO - ALTERNATIVE A**

Impacted Waters	Acres¹	Preserved Waters	Acres¹	Preservation to Impact Ratio
Drainage Ditch	1.26	Drainage Ditch	0.63	0.5:1
Channels and Streams	8.11	Channels and Streams	13.58	1.7:1
Seasonal Wetland	13.95	Seasonal Wetland	9.62	0.7:1
Vernal Pools and Swales	16.93	Vernal Pools and Swales	48.76	2.9:1
Open Water	0.00	Open Water	2.10	n/a
TOTAL:	40.25		74.68	1.9:1

¹ Totals are approximate and subject to rounding.

SOURCE: ESA, 2012; Sacramento County, 2011.

Based upon the calculations summarized in **Table 4.6-3**, Alternative A would include on-site preservation of roughly double the acreage impacted by site development. Furthermore, it would preserve the highest functioning waters on the project site according to the results of the Natural Resource Assessment described in **Section 3.5**. This includes the preservation of most Rank 4 and 5 features, and a nearly 3:1 preservation of vernal pool and swale features, which typically have the highest functions and services.

As described in **Chapter 2.0**, wetlands within the on-site Preserve would be actively managed in accordance with a Wetland Management Plan that is subject to final approval by the USACE, United States Fish and Wildlife Service (USFWS), California Department of Fish and Game (CDFG) and Environmental Protection Agency (EPA). Nevertheless, without additional compensation, the on-site loss of 40.25 acres of wetlands and other waters of the U.S. is considered a significant, adverse impact.

Mitigation Measures

Implement Mitigation Measures 5.1a: Compensate for Loss of Vernal Pool Habitat, 5.1b: Use Best Management Practices (BMPs) to Provide Effective Erosion and Sediment Control, 5.1c: Conduct Worker Environmental Awareness Training (WEAP), 5.1d: Limit Project Access Routes/Staging Areas and 5.1e: Protect Preserved and Avoided Habitats. As Mitigation Measure 5.1a addresses only aquatic resources which contain habitat suitable for vernal pool species, the following mitigation is necessary to ensure no net loss overall of jurisdictional waters of the U.S.

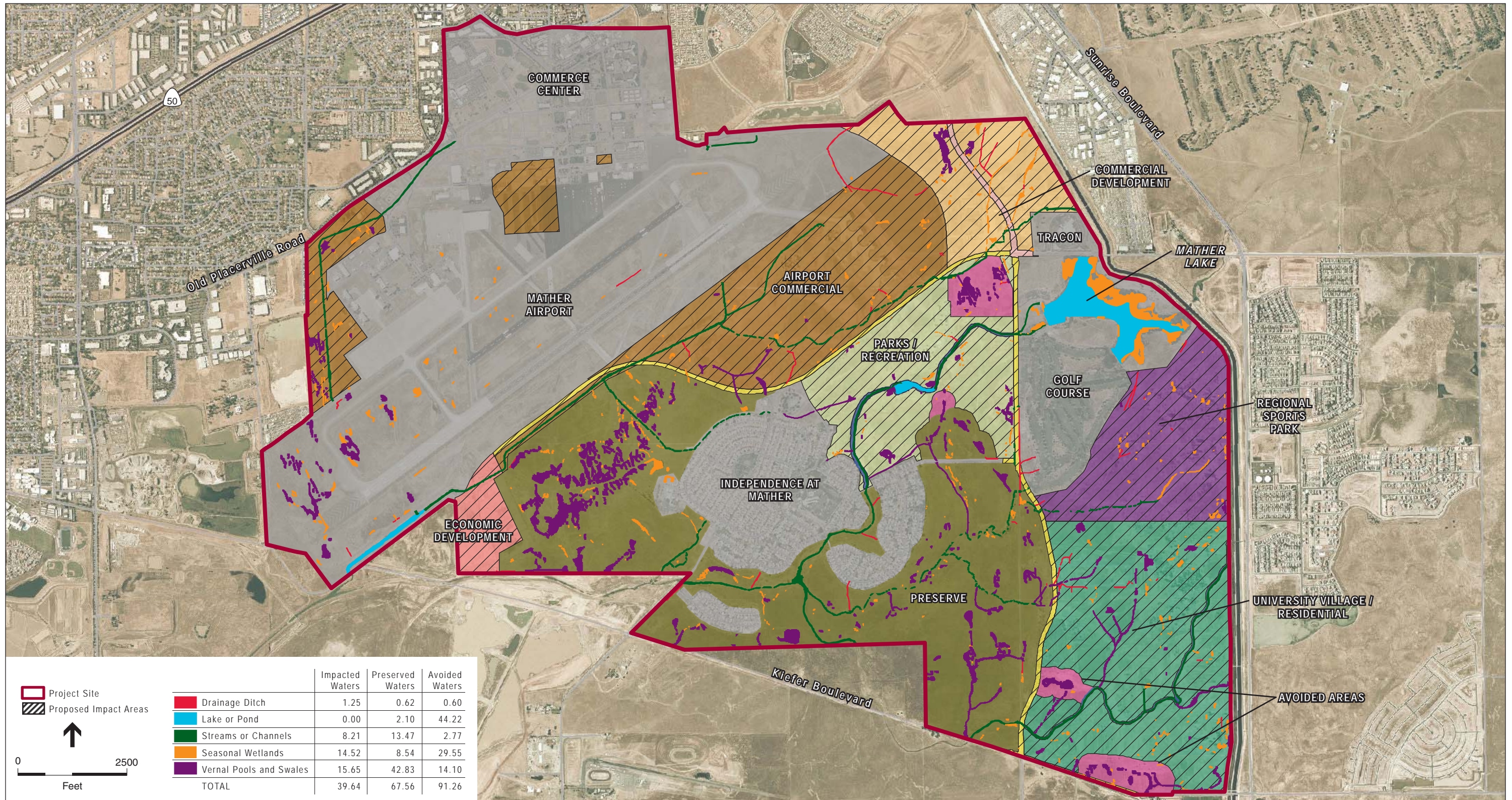
Measure 6.1: Fully Compensate for the Loss of Waters of the U.S.: The project proponent would ensure that any loss of waters of the U.S. would be compensated for by restoration or creation of waters at a ratio no less than 1:1, prior to construction. Compensation may include on or off site creation, restoration, or enhancement, or purchase of appropriate credits from a Corps-approved mitigation bank. On-site or off-site creation/restoration plans would be prepared by a qualified biologist prior to construction and approved by the Corps. On- or off-site creation/restoration sites would be monitored for at least five years to ensure their success.

4.6.2 Alternative B – 2006 Conceptual Land Use Plan Alternative

Impact 6.1: Effects to Wetlands and Other Waters of the U.S.

Approximately 39.64 acres of jurisdictional waters of the U.S. within the project site would be filled under Alternative B. Impacted features would include approximately 15.65 acres of vernal pools and swales, 14.52 acres of seasonal wetland, 1.25 acres of drainage ditches, and 8.21 acres of ephemeral and intermittent stream channels. Potential effects associated with each land use under Alternative B are summarized in **Table 4.6-4** and **Figure 4.6-2**.

Alternative B includes on-site preservation of approximately 67.56 acres of wetlands and other waters of the U.S. within on-site Preserve and Riparian Buffer areas. Approximately 7.72 acres of wetlands and other waters of the U.S. would also be located in avoided areas. Avoided areas would not be disturbed during construction but no active management is proposed. On site preservation is summarized in **Table 4.6-5**, while **Table 4.6-6** summarizes the preservation ratio for each impacted water type. Based upon the calculations summarized in **Table 4.6-6**, Alternative B would include an overall on-site preservation ratio of 1.7:1. Furthermore, it would preserve some of the highest functioning waters on the project site according to the Natural Resource Assessment described in **Section 3.5**. Wetlands within an on-site Preserve would be actively managed in accordance with a Wetland Management Plan that is subject to final approval by the USACE, USFWS, CDFG and EPA. Nevertheless, without additional compensation, the on-site loss of 39.64 acres of wetlands and other waters of the U.S. is considered a significant, adverse impact.



SOURCE: NAIP, 2009; and ESA, 2012

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Figure 4.6-2
Potentially Affected Waters of the U.S. – Alternative B

**TABLE 4.6-4
EFFECTS TO WATERS OF THE U.S. – ALTERNATIVE B**

Proposed Land Use	Type Affected	Acres Affected¹
Airport Commercial	Drainage Ditch	0.31
	Channels and Streams	5.67
	Seasonal Wetland	3.05
	Vernal Pools and Swales	3.23
Subtotal		12.25
Commercial Development	Drainage Ditch	0.22
	Channels and Streams	0.62
	Seasonal Wetland	3.40
	Vernal Pools and Swales	2.94
Subtotal		7.18
Economic Development	Drainage Ditch	0.006
	Channels and Streams	0.367
Subtotal		0.37
Parks Recreation	Drainage Ditch	0.01
	Channels and Streams	0.64
	Seasonal Wetland	1.34
	Vernal Pools and Swales	3.23
Subtotal		5.21
Roadways/Infrastructure	Drainage Ditch	0.19
	Channels and Streams	0.32
	Seasonal Wetland	0.14
	Vernal Pools and Swales	0.16
Subtotal		0.81
Regional Sports Park	Drainage Ditch	0.27
	Channels and Streams	0.29
	Seasonal Wetland	2.63
	Vernal Pools and Swales	0.20
Subtotal		3.39
University Village/ Residential	Drainage Ditch	0.26
	Channels and Streams	0.30
	Seasonal Wetland	3.97
	Vernal Pools and Swales	5.90
Subtotal		10.43
TOTAL:		39.64

¹ Totals are approximate and subject to rounding.

SOURCE: ESA, 2012; Sacramento County, 2011.

**TABLE 4.6-5
ON-SITE PRESERVATION – ALTERNATIVE B**

Proposed Land Use	Type Preserved	Acres Preserved¹
Preserve	Drainage Ditch	0.62
	Channels and Streams	7.08
	Seasonal Wetland	8.54
	Vernal Pools and Swales	42.79
Subtotal		59.03
Riparian Buffer	Open Water	2.10
	Drainage Ditch	0.002
	Channels and Streams	6.39
	Seasonal Wetland	0.001
	Vernal Pools and Swales	0.04
Subtotal		8.53
TOTAL:		67.56

¹ Totals are approximate and subject to rounding.
SOURCE: ESA, 2012; Sacramento County, 2011.

**TABLE 4.6-6
PRESERVATION TO IMPACT RATIO – ALTERNATIVE B**

Impacted Waters	Acres¹	Preserved Waters	Acres¹	Preservation to Impact Ratio
Drainage Ditch	1.25	Drainage Ditch	0.62	0.5:1
Channels and Streams	8.21	Channels and Streams	13.47	1.6:1
Seasonal Wetland	14.52	Seasonal Wetland	8.54	0.6:1
Vernal Pools and Swales	15.65	Vernal Pools and Swales	42.83	2.7:1
Open Water	0.00	Open Water	2.10	n/a
TOTAL:	39.64		67.56	1.7:1

¹ Totals are approximate and subject to rounding.
SOURCE: ESA, 2012; Sacramento County, 2011.

Mitigation Measures

Implement Mitigation Measures 5.1a: Compensate for Loss of Vernal Pool Habitat, 5.1b: Use BMPs to Provide Effective Erosion and Sediment Control, 5.1c: Conduct WEAP, 5.1d: Limit Project Access Routes/Staging Areas, 5.1e: Protect Preserved and Avoided Habitats, and 6.1: Fully Compensate for Loss of Waters of the U.S.

4.6.3 Alternative C – Multiple Preserves Alternative

Impact 6.1: Effects to Wetlands and Other Waters of the U.S.

Approximately 33.65 acres of jurisdictional waters of the U.S. within the project site would be filled under Alternative C. Impacted features would include approximately 10.77 acres of vernal pools and swales, 13.51 acres of seasonal wetland, 1.26 acres of drainage ditches, and 8.11 acres

of ephemeral and intermittent stream channels. Potential effects associated with each land use under Alternative C are summarized in **Table 4.6-7** and **Figure 4.6-3**.

**TABLE 4.6-7
EFFECTS TO WATERS OF THE U.S. – ALTERNATIVE C**

Proposed Land Use	Type Affected	Acres Affected¹
Airport Commercial	Drainage Ditch	0.31
	Channels and Streams	5.67
	Seasonal Wetland	3.05
	Vernal Pools and Swales	3.23
Subtotal		12.26
Commercial Development	Drainage Ditch	0.22
	Channels and Streams	0.62
	Seasonal Wetland	3.18
	Vernal Pools and Swales	0.46
Subtotal		4.48
Economic Development	Drainage Ditch	0.006
	Channels and Streams	0.367
Subtotal		0.37
Parks Recreation	Drainage Ditch	0.01
	Channels and Streams	0.54
	Seasonal Wetland	0.54
	Vernal Pools and Swales	0.83
Subtotal		1.92
Roadways/Infrastructure	Drainage Ditch	0.19
	Channels and Streams	0.32
	Seasonal Wetland	0.14
	Vernal Pools and Swales	0.16
Subtotal		0.80
Regional Sports Park	Drainage Ditch	0.27
	Channels and Streams	0.29
	Seasonal Wetland	2.63
	Vernal Pools and Swales	0.20
Subtotal		3.39
University Village/ Residential	Drainage Ditch	0.26
	Channels and Streams	0.30
	Seasonal Wetland	3.97
	Vernal Pools and Swales	5.90
Subtotal		10.43
TOTAL:		33.65

¹ Totals are approximate and subject to rounding.

SOURCE: ESA, 2012; Sacramento County, 2011.

Alternative C includes on-site preservation of approximately 81.28 acres of wetlands and other waters of the U.S. within on-site Preserves and Riparian Buffer areas. On site preservation is summarized in **Table 4.6-8**, while **Table 4.6-9** summarizes the preservation ratio for each impacted water type.

**TABLE 4.6-8
ON-SITE PRESERVATION - ALTERNATIVE C**

Proposed Land Use	Type Preserved	Acres Preserved¹
Preserves	Drainage Ditch	0.63
	Open Water	2.10
	Channels and Streams	10.10
	Seasonal Wetland	10.05
	Vernal Pools and Swales	54.90
Subtotal		77.78
Riparian Buffer	Channels and Streams	3.48
	Seasonal Wetland	0.001
	Vernal Pools and Swales	0.01
Subtotal		3.50
TOTAL:		81.28

¹ Totals are approximate and subject to rounding.

SOURCE: ESA, 2012; Sacramento County, 2011.

**TABLE 4.6-9
PRESERVATION TO IMPACT RATIO - ALTERNATIVE C**

Impacted Waters	Acres¹	Preserved Waters	Acres¹	Preservation to Impact Ratio
Drainage Ditch	1.26	Drainage Ditch	0.63	0.5:1
Channels and Streams	8.11	Channels and Streams	13.58	1.7:1
Seasonal Wetland	13.51	Seasonal Wetland	10.06	0.7:1
Vernal Pools and Swales	10.77	Vernal Pools and Swales	54.91	5.1:1
Open Water	0.00	Open Water	2.10	n/a
TOTAL:	33.65		81.28	2.4:1

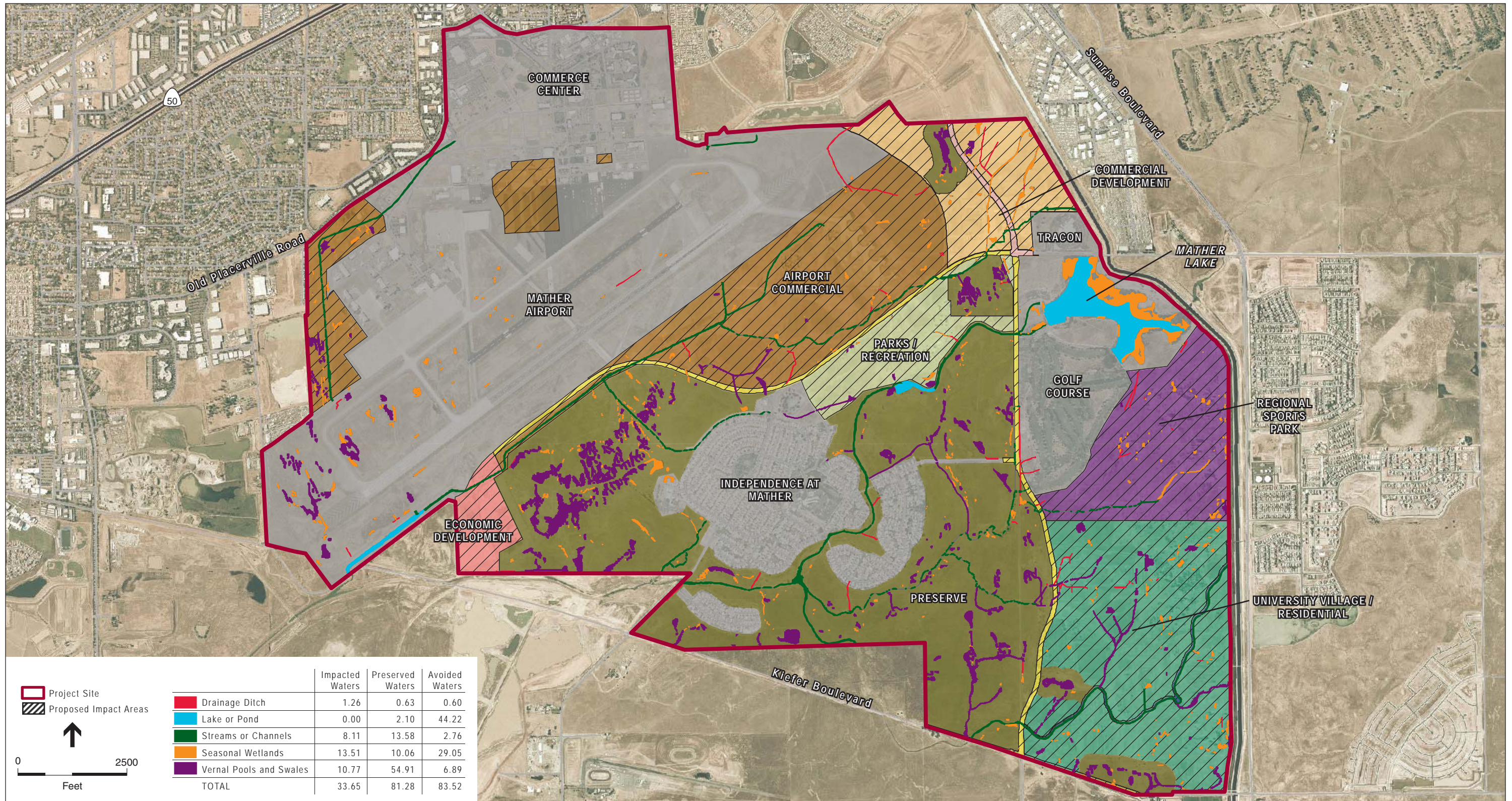
¹ Totals are approximate and subject to rounding.

SOURCE: ESA, 2012; Sacramento County, 2011.

Based upon the calculations summarized in **Table 4.6-9**, Alternative C would include an overall on-site preservation ratio of 2.4:1. Furthermore, it would preserve some of the highest functioning waters on the project site according to the Natural Resource Assessment described in **Section 3.5**. As described in **Chapter 2.0**, wetlands within the on-site Preserves would be actively managed in accordance with a Wetland Management Plan that is subject to final approval by the USACE, USFWS, CDFG and EPA. Nevertheless, without additional compensation, the on-site loss of 33.65 acres of wetlands and other waters of the U.S. is considered a significant, adverse impact.

Mitigation Measures

Implement Mitigation Measures 5.1a: Compensate for Loss of Vernal Pool Habitat, 5.1b: Use BMPs to Provide Effective Erosion and Sediment Control, 5.1c: Conduct WEAP, 5.1d: Limit Project Access Routes/Staging Areas, 5.1e: Protect Preserved and Avoided Habitats, and 6.1: Fully Compensate for Loss of Waters of the U.S.



SOURCE: NAIP, 2009; and ESA, 2012

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Figure 4.6-3
Potentially Affected Waters of the U.S. – Alternative C

4.6.4 Alternative D – No Permit Alternative

Impact 6.1: Effects to Wetlands and Other Waters of the U.S.

No wetlands or other waters of the U.S. would be filled under Alternative D. Potential development under this alternative could include infill development within the Mather Airport Commerce Center and aggregate mining near the southwest corner of the project site. Neither of these land uses would require the fill of jurisdictional features based upon the current wetland delineation. Thus impacts would be less than significant.

Alternative D would include a wetland preserve, but because this alternative does not include substantial economic development and related revenue to fund management of a preserve, the level of active management of preserve areas, including the restoration or enhancement of existing wetland resources, is unknown.

References

Sacramento County, 2011. Mather Field Wetland Delineation Re-Verification 2011 and associated GIS data files. Department of Environmental Review and Assessment. Sacramento, CA.

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4.7 Cultural and Historic Resources

4.7.1 Alternative A – Applicant’s Preferred Alternative

Impact 7.1: Effects to Historic Properties

Twenty-three historic-period structures were identified within the area of potential effects (APE, **Figure 3.7-1**). The structures have not yet been comprehensively surveyed and evaluated, and may be considered eligible for the National Register of Historic Places (NRHP) upon further review. In addition to the 23 historic-period structures recorded by ESA, previous surveys have identified two historic sites (infrastructure elements associated with Mather airfield) and a historic structure within the APE. These resources were recommended in previous surveys to be ineligible for the NRHP, but SHPO has not made a determination at this time.

In the event that any of the historic-period resources are determined to be eligible for the NRHP, implementation of Alternative A could result in the demolition or alteration of these resources, which would be a significant, adverse impact. Mitigation Measure 7.1 would reduce impacts to a less-than-significant level.

Mitigation Measures

Measure 7.1. Evaluate Historic-Period Sites and Develop a Historic Properties Treatment Plan. Historic-period structures within the APE would be comprehensively surveyed and evaluated for NRHP eligibility. In the event that any historic resources are determined eligible for listing in the National Register, a Historic Properties Treatment Plan (HPTP) would be developed in order to resolve adverse effects to any sites that would be affected. The HPTP would provide background information, describe the sites, present treatment measures, and provide a timetable for completion of the proposed measures.

Impact 7.2: Effects to Cultural and Paleontological Resources

No eligible cultural or paleontological resources have been identified within the APE. However, there is the possibility for accidental discovery of cultural or paleontological resources during earth-moving activities. The destruction or disturbance of such resources would be a significant, adverse impact.

The possibility of encountering human remains cannot be entirely discounted, although it is considered unlikely. In the event that human remains are discovered during earth-moving activities, including those interred outside of formal cemeteries, the human remains could be inadvertently damaged, which is a significant, adverse impact. For these impacts the incorporation of Mitigation Measures 7.2a and b would reduce impacts to a less-than-significant level.

Mitigation Measures

Measure 7.2a. Stop Work in the Event of an Archaeological or Paleontological Discovery. If potentially significant cultural resources, including archaeological or paleontological resources, are discovered during ground-disturbing activities associated with Alternative A, work would halt in that area until a qualified archaeologist can assess the

significance of the find, and, if necessary, develop appropriate treatment measures. If the archaeologist, with concurrence from SHPO, determines that a find is not significant and the impact not adverse, construction would proceed. If any find is determined to be significant and the effects adverse, the project proponent and a qualified archaeologist would meet with USACE to determine the appropriate measures to recover or protect the resource.

Measure 7.2b. Stop Work in the Event of the Discovery of Human Remains. In the event of discovery of any human remains on the site, there would be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of Sacramento County has been contacted. If the coroner determines that the human remains are of Native American origin, the Native American Heritage Commission will be notified and the guidelines of the NAHC will be adhered to in the treatment and disposition of remains (Public Resources Code 5097).

4.7.2 Alternative B and Alternative C

The impacts and mitigation for Alternative B and Alternative C are the same as those identified for Alternative A. **Section 4.1.2** explains the applicability of Alternative A impacts to Alternatives B and C.

4.7.3 Alternative D – No Permit Alternative

Impact 7.1: Effects to Historic Properties

Under the No Permit Alternative, it is possible for some infill development at Mather Airport and aggregate extraction in the southwestern corner of the project site to occur without the need for USACE Section 404 permit. Any future development would require local environmental approvals, including compliance with the California Environmental Quality Act. The building currently existing in the infill area would be evaluated for NRHP/CRHR eligibility. In the event that this structure is determined eligible for listing in either the National Register or California Register, a mitigation plan would be developed in order to resolve significant, adverse impacts. Based on these considerations, Alternative D would have a less-than-significant impact on historic properties.

Impact 7.2: Effects to Cultural and Paleontological Resources

There is the possibility for accidental discovery of archaeological or paleontological resources during earth moving activities associated with Alternative D infill development and aggregate extraction. The destruction or disturbance of these resources could result in a significant, adverse impact; however, as stated previously, these activities would require local approvals that would include measures to protect these resources. A less-than-significant impact would result.

4.8 Socioeconomics and Environmental Justice

Methodology

Socioeconomics

The evaluation of socioeconomic impacts is based on the development assumptions for the alternatives described in **Chapter 2.0**, and a review of available population, employment, and housing data from Sacramento County, the Sacramento Area Council of Governments (SACOG), the U.S. Census Bureau, California Employment Development Department and California Department of Finance. The employment assumptions for each alternative are included within **Table 4.8-1**. Population projections are based on the Sacramento County General Plan Housing Element estimate of 2.6 persons per household in the unincorporated area of the County from 2005 to 2025 (2008). Employee projections for the alternatives are based on the SACOG Preferred Scenario Blueprint (2010).

**TABLE 4.8-1
POPULATION AND EMPLOYMENT ASSUMPTIONS FOR PROJECT ALTERNATIVES**

	Alternatives	
	A, B and C	D
Employees²		
Airport Commercial	2,856	392
Commercial Development	1,111	0
University Village/Residential	1,856	0
Regional Sports Park	804	0
Total	6,627	392
Dwelling Units Proposed	2,530	0
Residential Population Total¹	6,580	0
<p>1. Residential population based on the estimate of 2.6 persons per household from the Sacramento County General Plan Housing Element.</p> <p>2. Employee projections based on the SACOG Preferred Scenario Blueprint (employees per acre developed area for industrial, public, retail, and office uses), 2010.</p> <p>SOURCE: SACOG 2010; Sacramento County, 2008</p>		

4.8.1 Alternative A – Applicant's Preferred Alternative

Impact 8.1: Temporary Increase in Population and Housing Demand During Construction

Construction of Alternative A would create a need for a number of construction jobs. Due to the economic downturn, construction jobs have dropped from over 75,000 in 2006 to approximately 32,700 in 2012 in the Sacramento region, leaving a substantial unemployed labor force in the construction industry (California EDD, 2012a). With the use of regionally available labor, this alternative is not anticipated to create a temporary or permanent increase in population or housing demand and thus, this impact would be less than significant.

Impact 8.2: Consistency with Growth Assumptions

Significant, adverse impacts could result if a project is not consistent with planned growth assumptions, providing too little or too much housing for anticipated population growth. Alternative A proposes development of approximately 2,530 dwelling units accommodating approximately 6,580 new residents (**Table 4.8-1**). It is likely that a portion of future residents would relocate from within the County. Based on future growth assumptions, SACOG anticipates that a total of 15,160 additional dwelling units would be required in unincorporated Sacramento County during the current planning period (2006–2013) to meet regional housing needs (SACOG, 2010). In 2006 there were approximately 215,916 residential units within the unincorporated area and approximately 220,368 units in January 2012; thus, approximately 4,452 dwelling units have been developed since 2006 in the unincorporated area (California Department of Finance, 2010 and 2012). Alternative A would provide approximately 24 percent of the remaining units anticipated within the planning area. Though housing would be developed and occupied after 2013, the increased housing is within planned growth assumptions and thus impacts from population growth would be less than significant.

Impact 8.3: Increased Housing Demand

Alternative A is expected to create approximately 6,627 jobs by 2020 (**Table 4.8-1**). It is anticipated that a portion of these jobs would be filled by existing residents within Sacramento County. The local labor force includes 74,900 unemployed workers within the County and 116,700 within the larger Sacramento County region (California EDD, 2012b). A portion of created jobs may be filled by persons who would need to relocate to the Sacramento area. Alternative A would provide 2,530 dwelling units which would reduce housing demand associated with in-migrating employees. Approved and proposed developments are expected to provide over 38,000 dwelling units in unincorporated Sacramento County and over 40,000 dwelling units in the City of Rancho Cordova in the long-term or cumulative scenario (see **Section 4.16** for additional information). Additionally, there are 42,000 vacant units in Sacramento County and additional vacant homes in neighboring counties such as Yolo County and Placer County (California Department of Finance, 2012). Given these factors, Alternative A is not anticipated to increase job opportunities to the extent that would create a significant, adverse housing demand within Sacramento County.

Impact 8.4: Potential Effects on Minority and Low-Income Populations

As discussed in **Section 3.8**, the project site does not contain minority or low-income populations. Additionally impacts which remain significant and adverse after mitigation, including air quality and traffic, are distributed over a large area and do not disproportionately affect a minority or low-income population group. For these reasons, this impact is considered less than significant.

4.8.2 Alternative B and Alternative C

The impacts and mitigation for Alternatives B and C are the same as those identified for Alternative A. **Section 4.1.2** explains the applicability of Alternative A impacts to Alternatives B and C.

4.8.3 Alternative D – No Permit Alternative

Impact 8.1: Temporary Increase in Population and Housing Demand During Construction

As discussed, there is a substantial unemployed labor force within the region which could be utilized for construction jobs for development which could occur under Alternative D. With the use of regional labor, Alternative D is not anticipated to create a temporary or permanent increase in population or housing demand and thus, this impact would be less than significant.

Impact 8.2: Increased Population Growth

Under Alternative D, residential uses or other uses which would otherwise directly result in increased population growth are not anticipated and thus impacts would be less than significant.

Impact 8.3: Increased Housing Demand

Development under Alternative D could create up to 392 jobs (**Table 4.8-1**). As there is a sufficient supply of available labor force locally and vacant housing in the area, the increase in jobs is not anticipated to result in significant, adverse housing demands within Sacramento County.

Impact 8.4: Potential Effects on Minority and Low-Income Populations

Development which could occur under Alternative D could potentially have significant, adverse air quality and traffic impacts which would remain after feasible mitigation. As discussed in Section 4.8.1, these types of impacts are dispersed and would not disproportionately affect minority or low-income populations. Thus impacts would be less than significant.

References

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4.9 Transportation and Traffic

The following section describes the potential effects to key intersections and roadways, pedestrian, bicycle, and public transit facilities expected from the analyzed alternatives. Mitigation measures to mitigate significant and adverse effects are also identified in this section. The impacts of off-site roadway mitigation are discussed in **Section 4.15.2**.

For this analysis the alternatives are compared to a baseline scenario. The baseline scenario included an extension of International Drive from Kilgore Road to Sunrise Boulevard and the extension of Zinfandel Drive from North Mather Drive to Douglas Road. Both extensions are now constructed.

As described in **Section 3.9**, standard intersection analyses use Level of Service (LOS) to rate traffic operation on various types of facilities based on the Highway Capacity Manual (HCM), which contains methodologies for various types of intersection control (e.g., stop signs, traffic signals), all of which are related to a measurement of delay in average number of seconds per vehicle. Local roadway and freeway analyses methodologies contained in the HCM use variables such as traffic volumes, geometric configuration of a roadway or freeway (i.e., number of lanes, widths of lanes and shoulders), topography, percentage of heavy vehicles, and free-flow speeds to determine LOS criteria.

Methodology

The following methodology applies to Alternatives A, B and C. For Alternative D, refer to **Section 4.9.3**.

Project Trip Generation

Trip generation is based upon information compiled by the Institute of Transportation Engineers (2008) and the description of alternatives in **Chapter 2.0**. **Table 4.9-1** summarizes the trip generation under Alternatives A through C with additional details provided in **Appendix E** of this EIS. As shown in the table, these alternatives are anticipated to generate 9,448 a.m. peak hour trip ends (the sum of 5,733 trips entering and 3,715 trips exiting), 12,517 p.m. peak hour trip ends (the sum of 5,499 trips entering and 7,018 trips exiting), and 136,047 weekday daily trip ends. A trip end is equal to one trip and is a single or one-directional vehicle movement; either the origin or the destination would be within the project site. Trip ends include trips leaving or entering the project boundary as well as internal trips. Peak hour traffic volume figures are included in **Appendix E**.

Trips made within the project site without accessing the external roadway system are known as internal trips, which were calculated using the SACMET travel model (Sacramento Area Council of Governments, 2008). The travel model divides all trips by trip purposes, such as trips from home to work, work to shopping, and work to home. The model then distributes and assigns these trips between appropriate trip origins and destinations. The distribution process considers the land use type, land use size, type of trip, time of day, and off-site uses. The trips that remain within the project site are the internal trips. Under Alternatives A, B, and C, the number of internal trips is estimated to be 716 trips in the a.m. peak hour, 1,148 trips in the p.m. peak hour, and 12,030 daily trips.

**TABLE 4.9-1
PROJECT TRIP GENERATION FOR ALTERNATIVES A, B AND C**

Project Component	Size	Daily	AM Peak Hour		PM Peak Hour	
			Entering	Exiting	Entering	Exiting
Airport Commercial – Light Industrial	6,220,368 sf	44,614	2,434	1,007	1,511	2,546
Commercial Development – Light Industrial	822,4131 sf	5,689	310	128	193	325
Commercial Development – Commercial Retail	630,332 sf	23,305	810	512	986	1,246
University Village/Residential – Private University	7,500 students	17,071	778	445	652	877
University Village/Residential – Residential/Elementary School	2,530 dwelling units	20,935	585	1,032	1,093	755
University Village/Residential – Commercial Retail	320,166 sf	12,299	420	264	525	662
Regional Sports Park – Sports Village and Fields	274 acres	12,134	396	327	539	607
Total		136,047	5,733	3,715	5,499	7,018

Note: The traffic analysis assumes that trip generation from the Parks and Recreation area would be negligible and primarily internal based on the passive recreation proposed for this area. Aggregate extraction is anticipated to use the existing conveyor system which is off-site and adjacent to the project site to transport aggregate to an existing off-site processing facility. As conveyance and processing resources are limited it is likely that the aggregate extraction would be phased in as a nearby operation phases out. Thus the resulting trips would be a negligible change to existing conditions in both volume and distribution.

SOURCE: DKS Associates 2010; ITE, 2008.

Trip Distribution

The distribution of trips associated with proposed development on the project site was derived utilizing the regional SACMET travel model and observations of travel patterns near the site. Trip distribution varies by land use and time period. **Table 4.9-2** illustrates the trip distribution based upon proposed traffic during the day associated with development under Alternative A, B or C.

**TABLE 4.9-2
TRIP DISTRIBUTION FOR ALTERNATIVES A, B AND C**

Route	Estimated Trip Distribution (Percent)
U.S. 50 Via Bradshaw Road Interchange	10
U.S. 50 via Mather Boulevard Interchange	15
U.S. 50 via Zinfandel Drive Interchange	25
U.S. 50 via Sunrise Boulevard Interchange	5
Jackson Road via Bradshaw Road	5
Jackson Road via Excelsior Road	2
Jackson Road via Eagles Nest Road	15
Jackson Road via Sunrise Boulevard	5
Other Roads / Internal Trips	18

SOURCE: DKS Associates, 2010. See Figure 5 of Appendix E for a map of distribution on local roadways.

4.9.1 Alternative A – Applicant's Preferred Alternative

Impact 9.1: Sacramento County Intersection and Roadway Performance

Most Sacramento County roadway facilities in the study area would continue to operate at acceptable levels of service with the addition of traffic volumes generated under Alternative A. As shown in **Table 4.9-3**, the segment of Bradshaw Road from Old Placerville Road to Kiefer Boulevard would operate at an unacceptable level of service under both the baseline and with the addition of traffic from Alternative A. As shown in **Table 4.9-4**, with the addition of vehicle traffic volumes generated by Alternative A, a.m. and p.m. peak hour intersection operating conditions at several intersections would degrade to unacceptable levels of service. This is a significant and adverse impact.

The unacceptable levels of service at Sacramento County roadway intersections could be reduced to less-than-significant levels with the following mitigation.

Mitigation Measure

Measure 9.1: Intersection Improvements. The project proponent would provide contributions for improvements to the following roadways:

- Bradshaw Road and Jackson Road (SR-16) – Add a second eastbound left turn lane. This mitigation is expected to improve the intersection to LOS “E”.
- Eagles Nest Road and Jackson Road (SR-16) – This intersection meets signal warrants (meets the requirements for a signal) during peak hours. Therefore the identified mitigation is to construct a new traffic signal and provide a separate left turn lane and a shared through-right lane at all approaches. This mitigation is expected to improve the intersection to LOS “C” or better.
- Grant Line Road and White Rock Road – Mitigation may not be necessary because the Rock Road widening project would construct a signal at this location prior to development of the project site. Information relating to this public project is available the Sacramento County website. If a signal is not constructed at this location before time of development then the identified mitigation would be to construct a new traffic and provide a separate turn and through lane at all approaches. This mitigation would improve the intersection to LOS “A”.

Impact 9.2: City of Rancho Cordova Intersection and Roadway Performance

As shown in **Table 4.9-3**, the operation of several City of Rancho Cordova roadway facilities would degrade from acceptable to unacceptable levels of service or (in some cases) further degrade unacceptable levels of service with the addition of Alternative A.

**TABLE 4.9-3
ROADWAY SEGMENTS ASSOCIATED WITH ALTERNATIVES A, B AND C**

Roadway Segment	LOS Policy	Lanes	Facility Type	Capacity	Baseline			Alternatives A, B and C		
					Volume	V/C	LOS	Volume	V/C	LOS
Bradshaw Rd - US-50 to Old Placerville Rd	D	6	Arterial - M	54,000	59,000	1.09	F	63,800	1.18	F
Bradshaw Rd - Old Placerville Rd to Kiefer Blvd	E	4	Arterial - M	36,000	41,500	1.15	F	43,200	1.20	F
Mather Field Rd - US-50 to Old Placerville Rd	D	6	Arterial - M	54,000	39,200	0.73	C	50,700	0.94	E
Zinfandel Dr - US-50 to White Rock Rd	D	6	Arterial - M	54,000	48,400	0.90	D	68,600	1.27	F
Zinfandel Dr - White Rock Rd to International Dr	D	6	Arterial - M	54,000	29,800	0.55	A	52,300	0.97	E
Sunrise Blvd - Kiefer Blvd to Jackson Rd (SR-16)	D	2	Arterial - M	18,000	17,700	0.98	E	20,200	1.12	F
Old Placerville Rd - Bradshaw Rd to Routier Rd	D	2	Arterial - M	18,000	18,400	1.02	F	23,300	1.29	F
Jackson Rd (SR-16) - Sunrise Blvd to Grant Line Rd	D	2	Rural Hwy	22,900	13,000	0.57	D	15,000	0.66	E

Notes: LOS = level of service; SR = State Route; U.S. 50 = U.S. Highway 50; V/C = volume-to-capacity; Arterial - M = Arterial with moderate access control; Rural Hwy = Rural 2-lane highway, Rural S = Rural 2-lane road with 24'-36' of pavement and paved shoulders; Rural NS = rural 2-lane road with 24'-36' of pavement and no shoulders.

Bold indicates deficiency. Shaded areas indicate impact.

SOURCE: DKS Associates, 2010.

**TABLE 4.9-4
AM/PM PEAK HOUR INTERSECTION OPERATING CONDITIONS ASSOCIATED WITH ALTERNATIVES A, B AND C**

Intersection		LOS Policy	Baseline Conditions						Alternative A, B and C Conditions						
			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			
			Meets Signal Warrant	V/C or Delay [1]	LOS	Meets Signal Warrant	V/C or Delay [1]	LOS	Meets Signal Warrant	V/C or Delay [1]	LOS	Meets Signal Warrant	V/C or Delay [1]	LOS	
North-South Street	East-West Street														
Sacramento County															
Bradshaw Rd	Jackson Rd(SR-16)	E	--	0.97	E	--	0.86	D	--	1.04	F	--	0.96	E	
Eagles Nest Rd	Jackson Rd(SR-16)	E	No	12.4	B	No	21.8	C	Yes	--	F	Yes	--	F	
Grant Line Rd	White Rock Rd	E	No	17.2	C	Yes	56.8	F	No	18.8	C	Yes	86.1	F	
City of Rancho Cordova															
Bradshaw Rd	Old Placerville Rd	D	--	0.84	D	--	0.86	D	--	1.04	F	--	0.97	E	
Mather Field Rd	Rockingham Dr	D	--	0.82	D	--	0.86	D	--	1.02	F	--	1.09	F	
Sunrise Blvd	Jackson Rd(SR-16)	D	--	0.96	E	--	0.85	D	--	1.02	F	--	0.94	E	
Grant Line Rd	Douglas Rd	D	No	22.4	C	No	16.5	C	Yes	42.9	E	Yes	30.0	D	
Grant Line Rd	Jackson Rd(SR-16)	D	--	1.03	F	--	1.12	F	--	0.99	E	--	1.09	F	
Zinfandel Dr	Douglas Rd	D	No	12.7	B	No	25.8	D	Yes	691.2	F	Yes	1,084.7	F	
Zinfandel Dr	Chrysanthy Blvd	D	--	--	--	--	--	--	Yes	252.8	F	Yes	425.1	F	
Mather Blvd	Douglas Rd	D	No	13	B	No	17.9	C	Yes	346.2	F	Yes	433.4	F	

[1] V/C = Volume-to Capacity ratio, Delay; At 4-Way Stop intersections (based on the 2000 HCM 4-Way Stop methodology) the reported delay is the average intersection delay. At unsignalized, 2-Way Stop intersections (based on the 2000 HCM Unsignalized methodology) the reported delay is for the worst approach. At signalized intersections (based on the 2000 HCM Operations) the reported delay is the intersection delay.

Bold indicates deficiency. Shaded areas indicate impact.

SOURCE: DKS Associates, 2010.

These affected City roadways include the following:

- Bradshaw Rd - US-50 to Old Placerville Rd
- Mather Field Rd - US-50 to Old Placerville Rd
- Zinfandel Dr - US-50 to White Rock Rd
- Zinfandel Dr - White Rock Rd to International Dr
- Sunrise Blvd - Kiefer Blvd to Jackson Rd (SR-16)
- Old Placerville Rd - Bradshaw Rd to Routier Rd
- Jackson Rd (SR-16) - Sunrise Blvd to Grant Line Rd

Similarly, as shown in **Table 4.9-4**, with the addition of vehicle traffic volumes generated by Alternative A to the baseline condition, a.m. and p.m. peak hour intersection operating conditions at the following City of Rancho Cordova intersections would degrade to unacceptable levels of service:

- Bradshaw Road and Old Placerville Road
- Mather Field Road and Rockingham Drive
- Sunrise Boulevard and Jackson Road (SR-16)
- Grant Line Road and Douglas Road
- Zinfandel Drive and Douglas Road
- Zinfandel Drive and Chrysanthy Boulevard
- Mather Boulevard and Douglas Road

This is a significant and adverse impact. With implementation of Mitigation Measure 9.2, effects for most City of Rancho Cordova roadway facilities and intersections would be reduced to less-than-significant levels. The impacts to some roadway segments would remain significant and adverse after implementation of mitigation. Additionally, there are three roadway segments where improvements are not within the jurisdiction of the County and thus there is no feasible mechanism for implementation. These segments include Bradshaw Road from US-50 to Old Placerville Road, Mather Field Road from US-50 to Old Placerville Road, and Zinfandel Drive from US-50 to International Drive. These roadways have already been improved to six lanes, which is the capacity identified in the City of Rancho Cordova General Plan.

Mitigation Measure

Measure 9.2: City of Rancho Cordova Roadway/Intersection Improvements. The project proponent would provide contributions for improvements to the following City of Rancho Cordova roadway network facilities:

Roadways

- Sunrise Blvd - Kiefer Blvd to Jackson Rd (SR-16) – Widen to a four lane arterial as identified in the Sacramento County and City of Rancho Cordova Improvement Standards and to the satisfaction of the Sacramento County Department of Transportation and City of Rancho Cordova Public Works Department. This is expected to improve operating conditions to LOS “A”.

- Old Placerville Rd - Bradshaw Rd to Routier Rd – Widen to a four lane arterial as identified in the Sacramento County and City of Rancho Cordova Improvement Standards and to the satisfaction of the Sacramento County Department of Transportation and City of Rancho Cordova Public Works Department. This is expected to improve operating conditions to LOS “B”.
- Jackson Rd (SR-16) - Sunrise Blvd to Grant Line Rd – Widen to a four lane arterial as identified in the Sacramento County and City of Rancho Cordova Improvement Standards and to the satisfaction of the Sacramento County Department of Transportation and City of Rancho Cordova Public Works Department. This is expected to improve operating conditions to LOS “A.”.

Intersections

- Bradshaw Road and Old Placerville Road –The identified mitigation measure is to add a second westbound right turn lane. This mitigation would improve the intersection to LOS “D” during the a.m. peak hour and to LOS “C” during the p.m. peak hour.
- Mather Field Road and Rockingham Drive – Addition of a second exclusive eastbound right turn lane would improve the intersection to LOS “D” in the a.m. peak hour but not in the p.m. peak hour. To mitigate the p.m. peak hour would require the addition of a third eastbound left turn lane and a fourth northbound through lane. The intersection would continue to operate at an unacceptable level.
- Sunrise Boulevard and Jackson Road (SR-16) – The identified improvement is to widen Sunrise Boulevard to provide an exclusive northbound right turn lane and restripe the northbound approach. This improvement would improve the intersection to LOS “E” (existing conditions) or better.
- Grant Line Road and Douglas Road – This intersection meets peak hour signal warrants. Therefore the identified improvement is to construct a new traffic signal and provide separate turn and through lanes at all approaches. This would improve the intersection to LOS “A”.
- Zinfandel Drive and Douglas Road – This intersection meets peak hour signal warrants. Therefore the identified improvement is to construct a new traffic signal and provide a separate left turn lane, two through lanes, and an exclusive right turn lane in the southbound and westbound approaches. The northbound and eastbound approaches would need dual left turn lanes, two through lanes, and an exclusive right turn lane. This would improve the intersection to LOS “D” or better.
- Zinfandel Drive and Chrysanthy Boulevard – This intersection meets peak hour signal warrants. Therefore the identified improvement is to construct a new traffic signal and provide separate turn and through lanes at all approaches. This would improve the intersection to LOS “D” or better.
- Mather Boulevard and Douglas Road – This intersection meets peak hour signal warrants. Therefore the identified improvement is to construct a new traffic signal and provide separate turn and through lanes in the northbound and eastbound approaches. The southbound approach would need dual left turn lanes and a shared through-right lane. The westbound approach would need separate turn and through lanes with an overlap right turn phase in the traffic signal operations. This would improve the intersection to LOS “D”.

Measures related to cumulative impacts are discussed in Cumulative Section 4.16.3.7.

Impact 9.3: Caltrans Intersection and Roadway Performance

All freeway intersections (with local roadways) are anticipated to operate at acceptable levels of service (**Appendix E**). However, the a.m. and p.m. peak hour operating conditions associated with traffic under Alternative A would affect the eastbound diverge to Mather Field Road Off-Ramp. There would be an increase in traffic volume at the off-ramp area already operating at LOS “F.”

The addition of traffic to a Caltrans facility that is currently operating at an unacceptable LOS is considered a potentially significant and adverse impact. With implementation of Mitigation Measure 9.3, the effect to this Caltrans facility would be reduced to a less-than-significant level.

Mitigation Measure

Measure 9.3: Contribute to Caltrans Roadway Improvements. The project proponent would provide contributions for improvements to the eastbound diverge to Mather Field Road Off-Ramp through the addition of an auxiliary lane to allow a double lane off ramp.

Impact 9.4: Bicycle, Pedestrian, and Public Transit Impacts

Alternative A would not disrupt existing or planned bicycle or pedestrian facilities and would not result in demands on these facilities that could not be accommodated.

Development resulting from Alternative A is expected to create demands for additional transit services that are not currently provided. The Transportation Plan in Sacramento County’s General Plan (2011) supports expansion of transit service, including three key corridors that would operate at LOS “F” conditions in 2032. High quality transit, or bus rapid transit, would operate along Watt Avenue, Sunrise Boulevard, and Florin Road. The Transportation Plan includes a robust transit system to both serve new growth areas and better serve existing urban areas. While implementation of Alternative A would result in an increase in the number of transit trips compared to Baseline Conditions, new development within the County is typically required to provide transit facilities and coordinate with local transit agencies to meet this increase in demand. The impact of these alternatives on transit facilities and operations is considered less than significant.

Impact 9.5: Construction-Related Impacts to Transportation Network

Construction activities associated with Alternative A would generate off site traffic that would include the initial delivery of construction vehicles and equipment to the project site, the daily arrival and departure of construction workers, and the delivery of materials throughout the construction period and removal of construction debris. Deliveries would include shipments of concrete, lumber, and other building materials for onsite structures, utilities (e.g., plumbing equipment and electrical supplies) and paving and landscaping materials.

Construction-generated traffic would be temporary, and therefore, would not result in any long term degradation in operating conditions on roadways in the project area. The impact of construction-related traffic would be temporary and intermittent, lessening of the capacities of streets in the project site vicinity because of the slower movements and larger turning radii of construction trucks compared to passenger vehicles. However, given the proximity of the project site to regional

roadway network (i.e., U.S. 50 and SR-16), use of local roads by construction trucks would be minimal. Most construction traffic would be dispersed throughout the day. Thus, the temporary increase would not result in a significant and adverse disruption to daily traffic flow on roadways in the project site vicinity.

4.9.2 Alternative B and Alternative C

The impacts and mitigation for Alternatives B and C are the same as those identified for Alternative A. **Section 4.1.2** explains the applicability of Alternative A impacts to Alternatives B and C.

4.9.3 Alternative D – No Permit Alternative

Impact 9.1 to 9.5: Impacts to Intersection and Roadway Performance

Under Alternative D, traffic would be generated from aggregate extraction operations and development and use of infill areas. Aggregate extraction operations would result in traffic similar in volume and distribution to existing conditions and thus would have a negligible effect (see note in Table 4.9-1). The airport commercial infill area which could be developed under the No Permit Alternative contains a building and paved surfaces for airplane parking. Based on the size of the infill area and the existing structure it is likely that improvements in this area would be minor and have a negligible impact on either traffic volume or distribution in comparison to existing conditions. Thus, impacts would be less than significant for this alternative.

References

DKS Associates, 2010. Mather Specific Plan Transportation Analysis. Sacramento, California. December 2010. Available for review in Appendix E of this EIS.

Institute of Transportation Engineers, 2008. Trip Generation, Eighth Edition.

Sacramento Area Council of Governments, 2008. Sacramento Regional Travel Demand Model Version 2007 – SACMET 07.

Sacramento County, 2011. General Plan Transportation Plan. Adopted November 9, 2011.

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4.10 Land Use and Agriculture

4.10.1 Alternative A – Applicant’s Preferred Alternative

Impact 10.1: Consistency with Existing Land Use Plans

Land uses in Sacramento County are guided by the Sacramento County General Plan adopted in 2011. Generally, Alternative A is consistent with the overall vision, goals and policies of the General Plan. The project site has been identified in the General Plan as a Special Planning Area proposed for a combination of public and private mixed uses. Alternative A includes industrial/commercial uses complementary to the airport, educational (elementary and college level) and recreational facilities, residential uses, and light industrial uses (including aggregate extraction adjacent to existing extraction activities), as well as natural/preserve spaces. This type of mixed-use development is consistent with the vision provided in the General Plan and thus this impact is considered less than significant. Development areas would undergo further evaluation by the County for local policy consistency during the design phase.

Impact 10.2: Compatibility with Existing Land Uses

The development proposed under Alternative A would be similar to the mixed-use development in the surrounding area, and as such, proposed uses would be generally compatible. Aggregate extraction proposed for the southwest corner of the project site would be located in an area away from residential and commercial uses and directly adjacent to similar existing uses. Although aggregate extraction would be incompatible with sensitive land uses, the location of the proposed site (away from proposed sensitive land uses and adjacent to existing, similar uses) eliminates this incompatibility.

The Project Site includes Mather Airport. Airport compatibility is regulated by Federal Aviation Regulation (FAR) Part 77. The FAA must be notified of any construction or alteration within 10,000 feet of a public use airport which exceeds a 50:1 surface from any point on the runway. This prevents the development of uses which are inconsistent with navigable air space. Compliance with FAA Part 77 would ensure consistency with airport operations and a less-than-significant impact.

Impact 10.3: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, to Non-Agricultural Use

None of the action area is under a Williamson Act contract (California DOC, 2009). There are no identified Important Farmlands within the action area (California DOC, 2006) nor is the area zoned for agricultural use, thus impacts to agriculture would be less than significant.

4.10.2 Alternative B and Alternative C

The impacts and mitigation for Alternatives B and C are the same as those identified for Alternative A. **Section 4.1.2** explains the applicability of Alternative A impacts to Alternatives B and C.

4.10.3 Alternative D – No Permit Alternative

Impact 10.1 Consistency with Existing Land Use Plans

Future development under Alternative D would be required to be consistent with the overall vision, goals and policies of the General Plan. Although this alternative would not develop the project site as under the other alternatives, Alternative D would not foreclose the option of additional future development to meet the vision for the Special Planning Area. This impact is therefore considered less than significant.

Impact 10.2 Compatibility with Existing Land Uses

Future development under Alternative D would be similar to current land uses in the southwest portion and airport areas of the site, and thus are not anticipated to conflict with existing uses. As with Alternatives A, B, and C, aggregate extraction would be located away from sensitive uses (including residential and commercial uses) and adjacent to existing aggregate extraction and thus impacts would be less than significant.

Impact 10.3: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, to Non-Agricultural Use

None of the project site is under a Williamson Act contract (California DOC, 2009). There are no identified Important Farmlands on the project site nor is the site zoned for agricultural use (California DOC, 2006), thus Alternative D would not result in the conversion of agricultural uses. Thus, impacts would be less than significant.

References

California Department of Conservation (DOC), 2006. Farmland Mapping and Monitoring Program, Sacramento.

California DOC, 2009. Sacramento County Williamson Act Lands 2009. Available online at: ftp://ftp.consrv.ca.gov/pub/dlrp/wa/Map%20and%20PDF/Sacramento/SacramentoWA_0910.pdf

Sacramento County, 2011. Sacramento County General Plan. Adopted November 9, 2011.

4.11 Public Services, Utilities and Recreation

Methodology

Impacts on public services, utilities and recreation facilities were identified by comparing existing service capacity and facilities against future demand associated with the alternatives. Information for the impact analysis was obtained from several agencies which would provide service to the project site, including Sacramento County Water Agency (SCWA), Sacramento Area Sewer District (SASD), Sacramento Regional County Sanitation District (SRCSD), Sacramento Metropolitan Fire District (SMFD), Sacramento County Sheriff's Department, and Elk Grove Unified School District (EGUSD).

4.11.1 Alternative A – Applicant's Preferred Alternative

Impact 11.1: Increased Demand for Municipal Water Service and Facilities

The total water demand was estimated using the demand factors from the SCWA Water System Infrastructure Plan (2006) which was used to estimate water demand at build-out of Zone 40 (Zone 40 discussed further in **Section 3.11**). The total water demand for Alternative A is estimated to be 4,996 acre feet per year at build out or on average 4.5 million gallons per day (MGD) (**Table 4.11-1**). The maximum daily demand is estimated to be 9 MGD (twice the average daily demand).

**TABLE 4.11-1
ALTERNATIVE A - ANNUAL AVERAGE WATER DEMAND ESTIMATES**

Area	Acreage	Demand Category	Unit Demand Factor (AF/Year)	Water Demand (AF/Year)
Proposed Development				
Airport Commercial	601	Mixed Land Use	2.51	1,503
Commercial Development	203	Mixed Land Use	2.51	510
Economic Development (Aggregate Extraction)	60	N/A	N/A	70 ¹
University Village/Residential	577	Mixed Land Use	2.51	1,448
Parks and Recreation	133	Public	1.04	138
Regional Sports Park	271	Public Recreation	3.46	938
Roadways/Infrastructure	65	Right-of-Way	0.21	14
Subtotal				4,621
Water System Losses (7.5%)				375
Proposed Development Total		1,910		4,996

1. Assumes 80,000 gallons per day for dust suppression based on similar projects.

SOURCE: SCWA, 2006; ESA, 2012

The major water distribution and supply facilities proposed for the project site and vicinity are shown in **Figure 4.11-1**, including the various phases of development of the water system. In the near term it is anticipated that water would be provided by the system that supplies the Independence at Mather housing subdivision. In the long term it is anticipated that additional water would be provided from the Vineyard Surface Water Treatment Plant (WTP). The aggregate mining in the Economic Development area would require water for dust control which would be supplied by water trucks. To analyze the maximum potential impact, it was conservatively assumed that the water trucks would obtain water from the North Service Area (NSA).

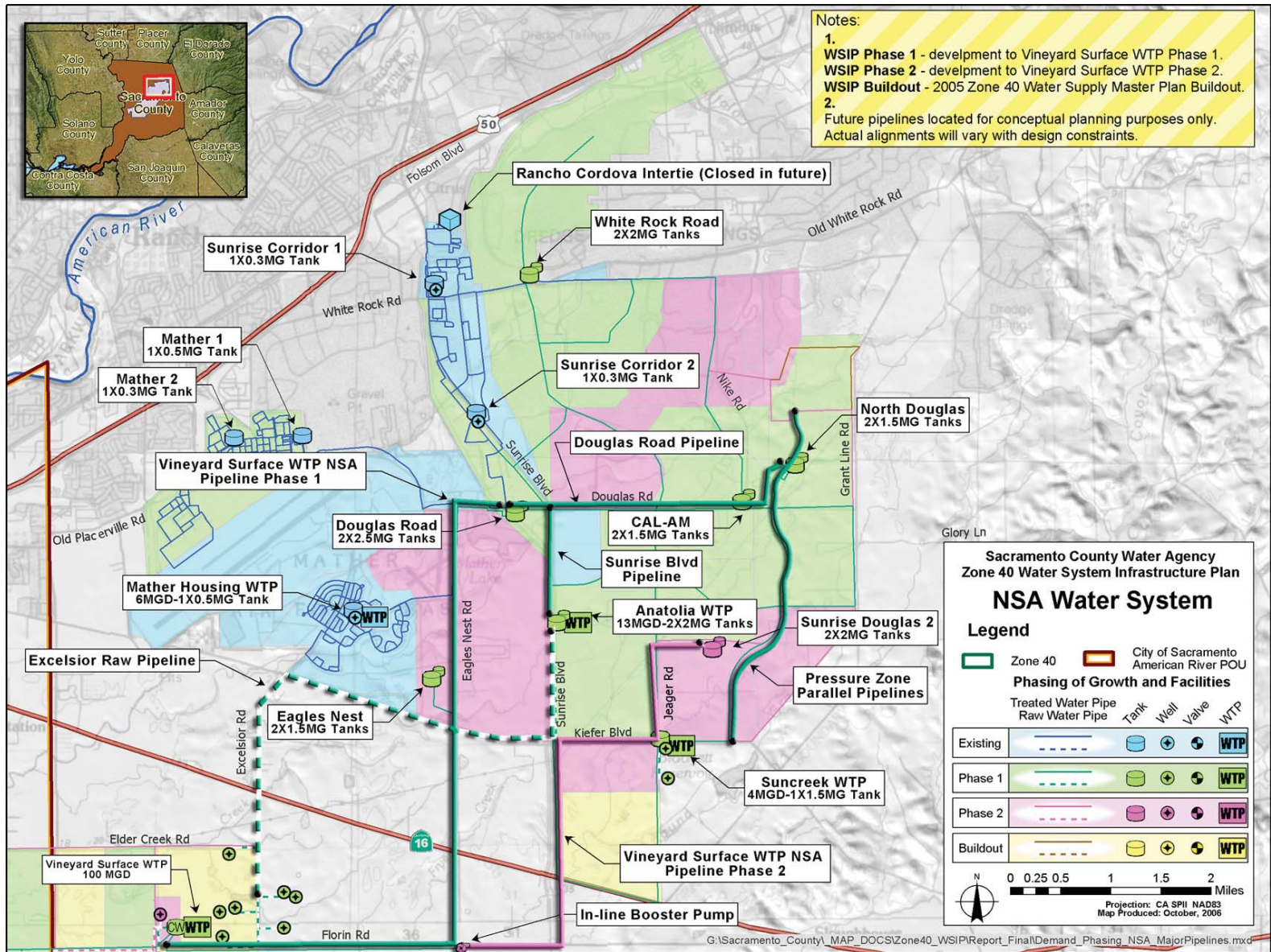
Near Term Water Supply

The total capacity of the Mather Housing WTP is approximately 4,200 gallons per minute (gpm) or 6.05 MGD. Existing development uses approximately 1.18 MGD. Thus, in the near term there is a remaining capacity of 4.87 MGD. This is adequate to supply Alternative A which is anticipated to have a demand of 4.5 MGD at full buildout. Additional on-site water supply storage would be required for peak flows and emergency fire flows.

The SCWA Water System Infrastructure Plan identifies the Anatolia Groundwater Treatment Plant as a possible source for near term water demand to the eastern portion of the project site. The Anatolia Groundwater Treatment Plant, which treats raw water from the North Vineyard Well Field, currently has a capacity of 4.3 MGD. A portion of this capacity serves development within the Sunridge Specific Plan Area. Four additional wells are planned to expand capacity to 13 MGD as needed. In the near term, there would be at least 8.7 MGD available to new development (SCWA, 2010). However, this is the proposed water supply for the Arboretum project and other projects in the Sunridge Specific Plan Area and thus it is not anticipated that Alternative A would connect to this system.

Long Term Water Supply

While the Mather Housing WTP has adequate capacity for Alternative A, SCWA plans to connect areas of the project site to the Vineyard Surface WTP. The first phase of the Vineyard Surface WTP was completed in 2011 and provides a capacity of 50 MGD. However, the project site would not be connected to this system until the NSA pipeline along Eagles Nest Road is installed. Planning efforts currently estimate pipeline construction by 2015. By 2022, the Vineyard Surface WTP is anticipated to have a capacity of 100 MGD. At buildout (including Alternative A and other proposed development), the NSA is anticipated to have a maximum daily demand of 58.9 MGD, which could be accommodated by the expanded 100-MGD Vineyard Surface WTP. SCWA documents available capacity in the near term and long term to serve Alternative A, thus the impacts from increased demand would be less than significant.



SOURCE: Sacramento County Water Agency, 2006; and ESA, 2010

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Figure 4.11-1
Proposed North Service Area (NSA) Water System

Impact 11.2: Increased Demand for Municipal Wastewater Service and Facilities

Total wastewater demand for Alternative A was estimated using the demand factors from the Sacramento General Plan Update Final Environmental Impact Report (EIR). These demand factors are based on the CSD-1 Sewerage Facilities Expansion Master Plan 2006 Update and SASD Design Standards from 2008 (Sacramento County, 2010). Using a demand factor of six Equivalent Single-Family Dwelling Units (ESDs) per acre, the 1,910 acres of proposed development would have an equivalent of 11,460 ESDs. SRCSD estimates a rate of 310 gallons per ESD within the Interceptor Master Plan (SRCSD, 2000) for an estimated total average dry weather flow (ADWF) of 3.6 MGD. Based on a comparison of projected ADWF and peak wet weather flow (PWWF) for the Mather and Bradshaw Interceptor Basins, the peak wet weather flow is estimated to be approximately 7.2 MGD (or twice the ADWF; SRCSD, 2000). The Sacramento Regional Wastewater Treatment Plant (SRWTP) currently receives 141 MGD and has a permitted dry weather capacity of 181 MGD. Thus the SRWTP currently has capacity for Alternative A (Sacramento County, 2010).

Regarding conveyance, the Airport Commercial area located west of the Mather Airport runway is within the BR71 Bradshaw Interceptor Basin. This area is near existing sewer infrastructure, including the recently completed Bradshaw Interceptor. The Airport Commercial area located on the east side of the Mather Airport runway and the other proposed development areas are within the MA12 Mather Interceptor Basin. There is a lack of existing infrastructure in the eastern portion of the project site and SASD and SRCSD have not finalized timing for the construction of the Mather Interceptor. For all proposed development areas, coordination with SASD and SRCSD would be required to ensure adequate capacity in local and regional infrastructure.

Further coordination with SASD and SRCSD would be required to ensure that adequate capacity is available in existing and planned conveyance facilities and to ensure that new infrastructure is developed as needed for proposed development. Due to the uncertainty associated with development of the Mather Interceptor and expansion of the SWRTP Alternative A could contribute to a significant and adverse impact. With the following mitigation, impacts would be reduced to a less-than-significant level.

Mitigation Measure

Measure 11.2: Coordinate Wastewater Service. Prior to construction, the project proponent would prepare a design-level sewer study for review and approval by SASD and SRCSD to document that existing and/or proposed conveyance facilities have adequate capacity.

Impact 11.3: Increased Generation of Solid Waste

The estimated total population for land uses described in Alternative A is 6,578 residents. Based on CalRecycle's solid waste generation rate of 2.1 tons of waste per person per year, the residential population of this alternative would generate approximately 13,814 tons per year (CalRecycle, 2010). Proposed businesses would generate approximately 6,890 tons per year based on business waste generation rates (**Table 4.11-2**).

**TABLE 4.11-2
ALTERNATIVES A, B AND C– BUSINESS WASTE ESTIMATES**

Employees		Code	Generation (tons/employee/year)	Total (tons/year)
Airport Commercial	2,856	38 Services Other Miscellaneous	0.9	2,570.4
Commercial Development	1,111	Retail Trade - Other	1.9	2,110.9
University Village/Residential	1,856	Services - Education	0.8	1,484.8
Regional Sports Park	804	Services - Other Miscellaneous (includes Amusement and Recreation Services)	0.9	723.6
Total	6,626			6,889.7

SOURCE: CalRecycle, 2010.

Combining residential and business wastes, solid waste generation for Alternative A would be approximately 20,704 tons per year at buildout of this alternative. As described in **Section 3.11**, the Kiefer Landfill is permitted to accept a maximum of 10,815 tons per day (3,947,475 tons per year) of solid waste. At buildout, the amount of solid waste generated by Alternative A represents approximately 0.5 percent of the daily permitted capacity of the landfill. The Kiefer Landfill has enough capacity to accept solid waste from Sacramento County, including new growth areas, until 2035 or later. Alternative A's contribution does not represent a substantial generation of solid waste and thus this impact would be less than significant.

Impact 11.4: Increased Demand for Energy and Telecommunications Infrastructure

Implementation of Alternative A would increase electrical demands by approximately 185 million kilowatt hours per year in the SMUD service area in Sacramento County (**Appendix C**). Alternative A would increase natural gas demands by 1.39 million cubic feet per day.¹ Telecommunication lines would be extended from the existing underground and overhead lines which serve the project site.

Electricity and natural gas are supplied in accordance with approved tariffs with the California Public Utilities Commission, typically on a first-come, first-served basis. Further coordination with SMUD and West Coast Gas would be required to ensure that adequate service could be provided to the proposed developments without affecting existing customers. This is a significant and adverse impact. With the following mitigation, impacts would be reduced to a less-than-significant level.

¹ Natural gas consumption for housing units averages 221 cubic feet (cf) of natural gas per day per dwelling unit (SCAQMD, 1993). Commercial and office energy consumption varies depending on specific uses, building materials, and space configurations. In general, commercial and office uses average approximately 0.097 cf of natural gas per square foot per day (SCAQMD, 1993). The dwelling units proposed in Alternative A are expected to require 0.56 million cf of natural gas per day (2,530 dwelling units × 221 cubic feet per day), and commercial and industrial uses would require 0.83 million cf per day (855,8113 square feet × 0.097 cf per day).

Mitigation Measure

Measure 11.4: Undertake Energy Service Agreements. The project proponent would submit service applications with design-level demands to SMUD and West Coast Gas to ensure adequate energy services are provided for each land use.

Impact 11.5: Increased Demand for Law Enforcement Services

The Sacramento County Sheriff's Department would provide primary law enforcement services to the project site. Using the County's goal of one officer to 1,000 residents (Sacramento County, 2010), the estimated number of police officers which would be needed to accommodate proposed development under Alternative A at buildout is approximately seven (based on an estimated residential population of 6,578); however, it should be noted that this standard is not currently met for the County. To maintain adequate levels of service, additional officers, facilities, and equipment would be required to serve proposed development. The Sheriff's Department is funded through Sacramento County's General Fund and sometimes supplemented by grant money. The development proposed by Alternative A would contribute to the General Fund and funding of law enforcement services through increased property tax and sales tax collection. Thus, the impacts to law enforcement services are expected to be less than significant.

Impact 11.6: Increased Demand for Fire Protection Services

SMFD would provide fire protection and emergency medical services to the project site. Implementation of Alternative A would result in a need for additional fire protection staff and/or facilities to maintain the SMFD response time goal of five minutes or less, 80 percent of the time. Multiple stations serve the project site. The proposed development would contribute to the funding of fire protection services through property taxes and impact/mitigation fees if required; thus, the impacts to fire protection services are expected to be less than significant.

Impact 11.7: Increased Demands on Public School Facilities

Development of residential uses would increase demands on school facilities. The proposed residences within the University Village / Residential land use would be located within EGUSD. The current student-yield generation rates for EGUSD that were used to estimate number of students generated by Alternative A are listed in **Table 4.11-3**. These estimates are based on the proposed 1,773 single-family dwelling units (10 units per acre or less) and 757 multi-family units (20 units per acre).²

² Dwelling unit assumptions in Table 2-2.

**TABLE 4.11.3
STUDENT YIELD GENERATION RATES FOR THE ELK GROVE UNIFIED SCHOOL DISTRICT –
ALTERNATIVES A, B AND C**

Grade	Single-Family (Students per Dwelling Unit)	Student Yield	Multi-family (Students per Dwelling Unit)	Student Yield	Total Student Yield*
Elementary (K-5)	0.4154	736.5	0.1562	118.2	774
Middle (6-8)	0.1215	215.4	0.0498	37.7	334
High (9-12)	0.2295	406.9	0.0946	71.6	479

*Rounded
SOURCE: EGUSD, 2010.

As shown in **Table 4.11-3**, Alternative A could generate up to 774 new elementary school students at buildout. Alternative A includes an 11-acre elementary school site that would be dedicated to EGUSD within the University Village/Residential area. As shown in **Table 4.11-3**, implementation of Alternative A could generate up to 334 new middle school students and approximately 479 new high school students at buildout. Alternative A does not propose to dedicate any middle or high school sites. According to EGUSD’s 2002-2010 Master Plan (2002) it is forecasted that the nearest middle/high school would be located within the proposed Arboretum development, approximately 0.5 miles to the east. With the planned school facilities on the project site and in the immediate vicinity, and the contribution of the project to developer fees and taxes, this impact is expected to be less than significant.

Impact 11.8: Increased Demand for Recreational Facilities

Alternative A includes development of residential uses which are expected to increase demands on recreation facilities such as parks and open space with passive recreation opportunities. The project site currently includes Mather Regional Park and Mather Sports Center (within the Commerce Center). In addition, Alternative A includes development of new recreation opportunities. The Regional Sports Park and Parks/Recreation land use areas include 404 acres of additional recreation opportunities. Furthermore, a 31.5-acre park is proposed within the University Village/Residential area. The proposed park and recreation areas far exceed the California’s Quimby Act requirement to dedicate three to five acres of parkland per 1,000 residents. Due to the incorporation of recreational uses within the project, impacts to recreation would be less than significant.

4.11.2 Alternative B – 2006 Conceptual Land Use Plan

Alternative

Impact 11.1: Increased Demand for Municipal Water Service and Facilities

Total water demand for Alternative B was estimated using the demand factors from the SCWA Water System Infrastructure Plan (2006). The total water demand for Alternative B is estimated to be 5,034 acre feet per year at build out or on average 4.5 MGD (**Table 4.11-4**). The maximum daily demand is estimated to be 9.0 MGD (twice the average daily demand).

**TABLE 4.11-4
ALTERNATIVE B - ANNUAL AVERAGE WATER DEMAND ESTIMATES**

Area	Acreage	Demand Category	Unit Demand Factor (AF/Year)	Water Demand (AF/Year)
Proposed Development				
Airport Commercial	600	Mixed Land Use	2.51	1,506
Commercial Development	203	Mixed Land Use	2.51	510
Economic Development (Aggregate Extraction)	60	N/A	N/A	70 ¹
University Village/Residential	527	Mixed Land Use	2.51	1,323
Parks and Recreation	284	Public	1.04	295
Regional Sports Park	271	Public Recreation	3.46	938
Roadways/Infrastructure	65	Right-of-Way	0.21	14
Subtotal				4,656
Water System Losses (7.5%)				378
Proposed Development Total		2,011		5,034

1. Assumes 80,000 gallons per day with 5 hour operating weeks in wet season and 6 hour operating weeks in dry season for dust suppression based on similar projects.

SOURCE: SCWA, 2006; ESA, 2010

In the near term it is anticipated that water would be provided by the system that supplies the Independence at Mather housing subdivision. In the long term, additional water is expected to be provided from the Vineyard Surface WTP. As SCWA documents available capacity in the near term and long term to serve demands generated by Alternative B, the impacts from increased demand would be less than significant.

Impact 11.2: Increased Demand for Municipal Wastewater Service and Facilities

The total wastewater demand generated by Alternative B was estimated using the demand factors from the Sacramento General Plan Update Final EIR as described under Alternative A. Using this demand factor, the 2,011 acres of proposed development areas would have an equivalent of 12,066 ESDs. SRCSD estimates a rate of 310 gallons per ESD within the Master Plan area (2000) for an estimated total ADWF of 3.75 MGD. Based on a comparison of projected ADWF and PWWF for the Mather and Bradshaw Interceptor Basins, the peak wet weather flow is estimated to be approximately 7.5 MGD (or twice the ADWF; SRSCD, 2000). The SRWTP currently has capacity for Alternative B as discussed previously for Alternative A.

Due to the uncertainty associated with development of the Mather Interceptor and expansion of the SWRTP, Alternative B could contribute to a significant, adverse impact. With the following mitigation, impacts would be reduced to a less-than-significant level.

Mitigation Measure

Implement Mitigation Measure 11.2: Coordinate Wastewater Service.

Impact 11.3: Increased Generation of Solid Waste

Alternative B would generate the same amount of solid waste as Alternative A (**Table 4.11-2**), and would not represent a substantial generation of solid waste. Thus, this impact would be less than significant.

Impact 11.4: Increased Demand for Energy and Telecommunications Infrastructure

Energy demand estimates were based on the number of dwelling units and business floor area which would be similar to those discussed for Alternatives A and C. Telecommunication lines would be extended from the existing underground and overhead lines which serve the project site. Further coordination with SMUD and West Coast Gas would be required to ensure that adequate service could be provided to the proposed developments without affecting existing customers. This is a significant and adverse impact. With the following mitigation, impacts would be reduced to a less-than-significant level.

Mitigation Measure

Implement Mitigation Measure 11.4: Undertake Energy Service Agreements.

Impact 11.5: Increased Demand for Law Enforcement Services

Law enforcement demands would be essentially the same as those described for Alternative A, as standards are based on estimated residential population. The development proposed by Alternative B would contribute to the General Fund and funding of law enforcement services through property taxes and sales tax and thus, the impacts to law enforcement services would be less than significant.

Impact 11.6: Increased Demand for Fire Protection Services

The impacts to fire protection services would be essentially the same as Alternative A. Alternative B would contribute to the funding of fire protection services through property taxes and impact/mitigation fees if required; thus, the impacts to fire protection services would be less than significant.

Impact 11.7: Increased Demands on Public School Facilities

Demand on school facilities would be similar to Alternative A. With the planned school facilities on the project site and in the immediate vicinity, and the contribution of the project to developer fees and taxes, this impact would be less than significant.

Impact 11.8: Increased Demand for Recreational Facilities

The Regional Sports Park and Parks/Recreation area include 555 acres of recreational area. Additionally, a 31.5-acre park is proposed within the University Village/Residential area. The proposed park and recreation areas exceed California's Quimby Act requirement to dedicate three to five acres of parkland per 1,000 residents and thus impacts to recreation would be less than significant.

4.11.3 Alternative C – Multiple Preserves Alternative

Impact 11.1: Increased Demand for Municipal Water Service and Facilities

Total water demand for Alternative C is estimated to be 4,798 acre feet per year at build out or on average 4.3 MGD (Table 4.11-5). The maximum daily demand is estimated to be 8.6 MGD (twice the average daily demand).

**TABLE 4.11-5
ALTERNATIVE C - ANNUAL AVERAGE WATER DEMAND ESTIMATES**

Area	Acreage	Demand Category	Unit Demand Factor (AF/Year)	Water Demand (AF/Year)
Proposed Development				
Airport Commercial	600	Mixed Land Use	2.51	1,506
Commercial Development	179	Mixed Land Use	2.51	449
Economic Development (Aggregate Extraction)	60	N/A	N/A	70 ¹
University Village/Residential	527	Mixed Land Use	2.51	1,323
Parks and Recreation	133	Public	1.04	138
Regional Sports Park	271	Public Recreation	3.46	938
Roadways/Infrastructure	66	Right-of-Way	0.21	14
	Subtotal			4,438
Water System Losses (7.5%)				360
Proposed Development Total		1,836		4,798

1. Assumes 80,000 gallons per day with 5 hour operating weeks in wet season and 6 hour operating weeks in dry season for dust suppression based on similar projects.

SOURCE: SCWA, 2006; ESA, 2010

As with Alternatives A and B, in the near term it is anticipated that water would be provided by the system that supplies the Independence at Mather housing subdivision. In the long term, it is anticipated that additional water would be provided from the Vineyard Surface WTP. As SCWA documents available capacity in the near term and long term to serve demands generated by Alternative C, the impacts from increased demand would be less than significant.

Impact 11.2: Increased Demand for Municipal Wastewater Service and Facilities

The total wastewater demand generated by Alternative C was estimated using the demand factors from the Sacramento General Plan Update Final EIR as described under Alternatives A and B. Using this demand factor, the 1,836 acres of proposed development areas would have an equivalent of 11,016 ESDs. SRCSD estimates a rate of 310 gallons per ESD within the Master Plan area (2000) for an estimated total ADWF of 3.4 MGD. Based on a comparison of projected ADWF and PWWF for the Mather and Bradshaw Interceptor Basins, the peak wet weather flow is estimated to be approximately 6.8 MGD (or twice the ADWF; SRSCD, 2000). The SRWTP currently has adequate capacity for Alternative C as discussed previously for Alternatives A and B.

The conveyance system would be the same as described under Alternatives A and B. Due to the uncertainty associated with development of the Mather Interceptor and expansion of the SWRTP,

Alternative C could contribute to a significant, adverse impact. With the following mitigation, impacts would be reduced to a less-than-significant level.

Mitigation Measure

Implement Mitigation Measure 11.2: Coordinate Wastewater Service.

Impact 11.3: Increased Generation of Solid Waste

Alternative C would generate approximately the same amount of solid waste as Alternatives A and B (**Table 4.11-2**), and would not represent a substantial generation of solid waste. Thus, this impact would be less than significant.

Impact 11.4: Increased Demand for Energy and Telecommunications Infrastructure

Energy demand estimates were based on the number of dwelling units and business floor area which are essentially the same as those discussed for Alternatives A and B. Telecommunication lines would be extended from the existing underground and overhead lines which serve the project site. Further coordination with SMUD and West Coast Gas would be required to ensure that adequate service could be provided to the proposed developments without affecting existing customers. This is a significant and adverse impact. With the following mitigation, impacts would be reduced to a less-than-significant level.

Mitigation Measure

Implement Mitigation Measure 11.4: Undertake Energy Service Agreements.

Impact 11.5: Increased Demand for Law Enforcement Services

Law enforcement demands are essentially the same as those described for Alternatives A and B, as standards are based on estimated residential population. The development proposed by Alternative C would contribute to the General Fund and funding of law enforcement services through property taxes and sales tax and thus, the impacts to law enforcement services are expected to be less than significant.

Impact 11.6: Increased Demand for Fire Protection Services

The impacts to fire protection services are essentially the same as Alternatives A and B. Alternative C would contribute to the funding of fire protection services through property taxes and impact/mitigation fees if required; thus, the impacts to fire protection services are expected to be less than significant.

Impact 11.7: Increased Demands on Public School Facilities

Demand on school facilities would be similar to Alternatives A and B. With the planned school facilities on the project site and in the immediate vicinity, and the contribution of the project to developer fees and taxes, this impact are expected to be less than significant.

Impact 11.8: Increased Demand for Recreational Facilities

Alternative C includes development of 404 acres of recreational opportunities associated with the proposed Regional Sports Park and Parks/Recreation land use areas. Furthermore, a 31.5-acre park is proposed within the University Village/Residential area. The proposed park and recreation areas exceed California's Quimby Act requirement to dedicate three to five acres of parkland per 1,000 residents and thus impacts to recreation would be less than significant.

4.11.4 Alternative D – No Permit Alternative**Impact 11.1 to 11.8: Increased Demand for Public Services**

New development under Alternative D would be required to contribute to the cost of providing services to the infill and aggregate extraction areas and thus impacts to public services and utilities would be less than significant. These fees may be paid through property taxes (including improvements) or through fee programs developed by the County.

References

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4.12 Hazards and Hazardous Materials

This analysis considers the range and nature of foreseeable hazardous materials use, storage, and disposal resulting from implementation of any of the four alternatives, and identifies the primary ways that these hazardous materials could potentially expose individuals or the environment to health and safety risks. In determining the magnitude of potential impacts, the analysis assumes that any development would comply with relevant federal, state, regional, and local ordinances and regulations.

Alternatives A, B and C would involve a variety of uses, including residences, commercial businesses, light industrial businesses, education facilities, active/passive recreation, resource preservation/management, and aggregate extraction. This analysis assumes and evaluates a broad range of potential uses that could bring hazardous materials to the project site based on these land use categories.

4.12.1 Alternative A – Applicant’s Preferred Alternative

Impact 12.1: Potential Release of or Exposure to Hazardous Materials

Development of Alternative A would involve site grading, excavation for utilities, trenching, backfilling, and construction of proposed facilities. These actions could result in the exposure of construction workers and the general public to hazardous materials, including petroleum hydrocarbons, contaminated debris, and/or elevated levels of chemicals that could be hazardous. Hazardous substances associated with construction could be inadvertently spilled or otherwise spread within the project site. Although a majority of Installation Restoration Program sites on the former air force base have been cleaned up and are no longer under remediation, excavation and construction activities at or near these areas could potentially expose construction workers and the general public to previously unidentified soil and/or groundwater contamination. Any exposure to hazardous materials could pose a health risk to construction workers and the general public; therefore, this would be a significant, adverse impact. With the following mitigation, impacts would be reduced to a less-than-significant level.

Mitigation Measures

Measure 12.1a: Measures to Prevent Possible Exposure to Previously Undiscovered On-site Hazardous Materials. If during site preparation and construction activities, previously undiscovered or unknown hazardous materials are observed or suspected through either obvious or implied measures (e.g., stained or odorous soil), construction contractor(s) would immediately cease all activities in the area of the find.

The contractor(s) would immediately contact Sacramento County Environmental Management Department (SCEMD) staff for direction on further protocols regarding management of suspected soil or groundwater contamination and interim requirements for remediation, if any. In addition, the project proponent would contract with a qualified consultant registered in the California Department of Toxic Substances Control’s (DTSC’s) Registered Environmental Assessor Program to assess the situation. The Registered Environmental Assessor would

collect soil and/or water samples for laboratory analysis in accordance with SCEMD oversight to determine potential health concerns. Any contaminated areas would be remediated in accordance with recommendations of SCEMD, the Central Valley Regional Water Quality Control Board, DTSC, or other appropriate federal, state, or local regulatory agencies. Site preparation and construction activities would not proceed until remediation is completed to the satisfaction of SCEMD.

Measure 12.1b: Remove and Dispose of Stained Soils. Before the start of any construction and as a condition of grading permits, the project proponent would retain a licensed contractor to remove and properly dispose of all stained soil in accordance with the appropriate disposal facilities requirements as well as federal, state, and local regulations.

Measure 12.1c: Remove On-Site Debris. Before the start of any construction and as a condition of grading permits, the project proponent would retain a licensed contractor to remove and properly recycle or dispose debris from the project site. If soil staining is observed after the removal of debris, soils would be removed and disposed of in accordance with federal, state, and local regulations.

Measure 12.1d: Evaluate Pole-Mounted Transformers for the Presence of Polychlorinated Biphenyls (PCBs). Before the start of any construction, the project proponent would contact the Sacramento Municipal Utility District (SMUD) to assess the contents of the existing pole-mounted transformers located on the project site. SMUD would conduct an assessment and provide a letter stating whether existing electrical transformers on the site contain PCBs and whether any records of spills exist from such equipment. If SMUD identifies PCB-containing equipment, the maintenance or disposal of the transformer would be subject to the regulations of the Toxic Substances Control Act under the authority of SCEMD.

Impact 12.2: Exposure to Asbestos and Lead-Based Paint

Asbestos

Asbestos could be encountered during demolition of existing buildings at the site which would require appropriate containment and disposal to avoid adverse effects to construction workers or the public. Affected buildings would need appropriate abatement of identified asbestos prior to demolition or renovation. Asbestos-containing materials (ACMs) are regulated both as a hazardous air pollutant under the Clean Air Act and as a potential worker safety hazard under the authority of the California Division of Occupational Safety and Health (Cal/OSHA). The renovation or demolition of buildings containing asbestos would require contractors who are licensed to conduct asbestos abatement work. Section 19827.5 of the California Health and Safety Code requires that local agencies not issue demolition or alteration permits until the project proponent has demonstrated compliance with notification requirements under applicable Federal regulations regarding hazardous air pollutants.

The Sacramento Metropolitan Air Quality Management District is vested by the California legislature with authority to regulate airborne pollutants, including asbestos, through both inspection and law enforcement, and is to be notified ten days in advance of any proposed demolition or abatement work.

Potential exposure to asbestos, and its related chronic adverse health effects, is possible throughout demolition and renovation if materials that contain asbestos are present. However, abatement of known or suspected ACMs would occur prior to demolition or construction activities that would disturb those materials. Pursuant to an asbestos abatement plan developed by a State-certified asbestos consultant and approved by the County, all ACMs would be removed and appropriately disposed of by a State-certified asbestos contractor. Adherence to all the aforementioned regulatory requirements would ensure that potential impacts related to ACMs would be less than significant.

Lead and Lead-based Paint

The surveys conducted by the U.S. Air Force in 1998 for ACMs also included surveys for the presence of lead-based paint. Lead-based paint, if present, can be separated from building materials during demolition activities. Separated paint can be classified as a hazardous waste if the lead content exceeds 1,000 parts per million and would need to be disposed of accordingly. Additionally, lead-based paint chips can pose a hazard to workers and adjacent sensitive receptors. Both the Federal and California OSHAs regulate all worker exposure during construction activities that disturb lead-based paint. The Interim Final Rule found in 29 CFR §1926.62 covers construction work where employees may be exposed to lead during such activities as demolition, removal, surface preparation for re-painting, renovation, clean up and routine maintenance. The OSHA-specified method of compliance includes respiratory protection, protective clothing, good housekeeping practices, use of hygiene facilities, medical surveillance, training, and other measures.

The existing regulatory framework requires that a lead-based paint abatement plan be prepared by a qualified consultant, which would include the following components:

- A pre-demolition lead-based paint survey for all structures proposed for demolition. The survey would include sampling and identification of suspected areas containing lead-based paint.
- Development of an abatement specification plan.
- A site Health and Safety Plan.
- Containment of all abatement work areas to prohibit offsite migration of paint chip debris.
- Removal of all peeling and stratified lead-based paint on building surfaces and on non-building surfaces to the degree necessary to safely and properly complete demolition activities per the recommendations of the survey. The demolition contractor would be identified as responsible for properly containing and disposing of intact lead-based paint on all equipment to be cut and/or removed during the demolition.
- Appropriately remove paint chips by vacuum or other approved method.
- Collection, segregation, and profiling waste for disposal determination.

With implementation of a required abatement plan and all the regulatory requirements regarding identification, handling, and disposal of lead-based paint, the potential impacts related to demolition activities of lead-based paint materials would be less than significant.

Impact 12.3: Use, Storage, and Transport of Hazardous Materials On-Site

Hazardous materials would be used in varying amounts during construction. Construction and maintenance activities would use hazardous materials such as fuels (gasoline and diesel), oils and lubricants, paints and paint thinners, glues, and cleaners (which could include solvents and corrosives in addition to soaps and detergents). Construction workers and the general public could be exposed to hazards and hazardous materials as a result of improper handling or use during construction activities (particularly by untrained personnel), transportation accidents, fires, explosions, or other emergencies. Construction workers could also be exposed to hazards associated with accidental releases of hazardous materials, which could result in adverse health effects. Operation of Alternative A would potentially include the use of hazardous materials such as fertilizers, pesticides, herbicides, household cleaning agents, and chemicals for swimming pool maintenance. The project proponent, builders, contractors, business owners, and others would be required to use, store, and transport hazardous materials in compliance with federal, state, and local regulations during construction and operation. On-site operational uses that would use hazardous materials would be required to obtain any necessary permits and comply with appropriate regulatory agency standards designed to avoid hazardous waste releases.

Caltrans and California Highway Patrol regulations related to the routine use and transport of hazardous substances (Titles 8, 22, and 26, and their enabling legislation set forth in Chapter 6.5 (Section 25100 et seq.)) must be implemented by businesses, and compliance with these regulations would be monitored by the state (i.e., Cal/OSHA in the workplace, DTSC for hazardous waste, and California Air Resources Board for asbestos and lead) and/or local jurisdictions (i.e., SCEMD) through the issuance of business licenses, permits, and regular inspection.

Construction and operations would comply with the California Environmental Protection Agency's Unified Program managed by SCEMD, the designated Certified Unified Program Agency for Sacramento County, in accordance with the regulations included in the Unified Program (e.g., hazardous materials release response plans and inventories, hazardous material management plans and inventories of the California Uniform Fire Code). Such compliance would reduce the potential for accidental release of hazardous materials during construction and operation. As a result, this compliance with the above mentioned Federal, State, and Local regulations related to hazardous materials would lessen the risk of accidental release of hazardous materials, as well as lessen the demand for incident emergency response.

Because Alternative A would implement and comply with federal, state, and local hazardous materials regulations monitored by the state (e.g., Cal/OSHA, DTSC, CHP) and/or local jurisdictions (e.g., SCEMD), significant, adverse hazards to the public through routine transport, use, disposal, and risk of upset would be unlikely. Thus, this impact is considered less than significant.

Impact 12.4: Potential Exposure to Contaminated Groundwater

There is existing groundwater contamination within the project site boundaries undergoing various levels of remediation. There are contaminated groundwater plumes beneath the Airport Commercial, Parks and Recreation, Commercial Development, Economic Development (Aggregate Extraction) and

Preserve uses. Ongoing groundwater remediation and monitoring programs would continue to be implemented. Alternative A does not propose to use local groundwater as a source of domestic water. Groundwater extraction would be limited by institutional controls including land use restrictions on either a lease (for leased property) or deed (for transferred property) for any property currently owned by the U.S. Air Force pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (42 USC §9601 et seq.) and California Department of Toxic Substances Control requirements for land use covenants (22 CCR §67391.1). If groundwater does not meet drinking water standards for unrestricted use (such as residential), groundwater extraction would be restricted within the lease or deed. For these reasons, impacts are anticipated to be less than significant.

Impact 12.5: Exposure to Electromagnetic Fields

Power transmission lines traverse the project site in the western and northern portions of the site. All electrical devices generate electromagnetic fields (EMFs), and at a distance of 200 feet and during average electrical demand, the EMF from transmission lines would be similar to typical background levels found in most homes. Furthermore, because many studies have concluded that evidence for a direct link between EMF and health issues is “weak,” the State of California has not adopted any laws or regulations requiring an additional setback from electric power lines beyond the utility right-of-way easement, which is generally 50 feet on either side of a 230 kV line. For these reasons, the exposure to EMFs would be minimal and the proposed location of land uses would be adequate to reduce the potential hazards associated with electromagnetic fields. This impact would be considered less than significant.

Impact 12.6: Potential Human Health Hazards Associated with Mosquito-Borne Diseases

Potential hazards to public health could result from features that could perpetuate mosquito populations. Areas of standing water on the project site, such as drainage ditches, provide potential mosquito breeding sites. Mosquito management guidelines have not been proposed for Alternative A, as required by the County.

Although the Sacramento-Yolo Mosquito and Vector Control District would continue to provide mosquito abatement and the mosquito controls applied by the District are considered to be appropriate and safe for human exposure, Alternative A could result in a new risk of adverse health effects associated with vector-borne diseases or hazards because new water-related sources of mosquito breeding habitat would be created (such as additional drainage features and detention basins). For these reasons, this is a significant, adverse impact. With the following mitigation, impacts would be reduced to a less-than-significant level.

Mitigation Measure

Measure 12.6: Develop and Implement Site-Specific Mosquito Management Guidelines.

Before the start of any construction activities, the project proponent would develop a set of site-specific Mosquito Management Guidelines in coordination with the Sacramento-Yolo Mosquito and Vector Control District. This plan(s) would include applicable prevention and control measures and address created mosquito vector habitat (e.g., storm drainage

features). Prevention and control measures within the program may include, but not be limited to, the use of biological controls (natural predators) in standing water features, provision of outreach and educational information on vectors to homeowners, and use of storm drainage features that are self-draining. The guidelines would be submitted to Sacramento County for review and approval. The project proponent would implement the approved guidelines before the start of construction activities and during construction as specified in the guidelines.

Impact 12.7: Airport Hazards

The project site includes Mather Airport. The Sacramento Area Council of Governments, acting in its capacity as the Airport Land Use Commission (ALUC) for Sacramento, Sutter, Yolo, and Yuba counties, adopted a comprehensive land use plan for Mather Airport which sets forth policies that are used by the ALUC in evaluating the compatibility between future, proposed land use development in the vicinity of the Airport. Land uses proposed by Alternative A are compatible uses as defined in the land use plan, thus Alternative A would have a less-than-significant effect.

Impact 12.8: Potential Exposure of People or Structures to Wildland Fires

Alternative A would be required by law to incorporate California Building Code and Sacramento Metropolitan Fire District (SMFD) fire prevention standards into new residential and commercial development. These standards include access arrangements, fire hydrant placement, fire flow availability and requirements, and plan submittal requirements. Complying with California Building Code regulations, the SMFD fire prevention standards, and other state and local fire safety requirements would minimize wildland fire risks at the project site, and therefore ensure that potential impacts would be less than significant.

4.12.2 Alternative B and Alternative C

The impacts and mitigation for Alternatives B and C are essentially the same as those identified for Alternative A. **Section 4.1.2** explains the applicability of Alternative A impacts to Alternatives B and C.

4.12.3 Alternative D – No Permit Alternative

Impacts 12.1 to 12.8: Exposure to Hazards and Hazardous Materials

Future development under Alternative D could result in the exposure of construction workers and the general public to hazardous materials; however, any future land uses must comply with federal, state, and local hazardous materials regulations monitored by the state (e.g., Cal/OSHA, DTSC, CHP) and/or local jurisdictions (e.g., SCEMD). Adherence to all regulatory requirements would ensure that potential impacts related to asbestos and lead-based paint in existing buildings would be less than significant. Groundwater extraction would be limited by institutional controls, including land use restrictions as defined by the lease/deed with the U.S. Air Force if the groundwater does not meet drinking water standards for unrestricted use. Alternative D would also avoid impacts related to electromagnetic fields and mosquito-borne diseases, as development would be limited and would be subject to local ordinances and policies. Development under Alternative D would be a compatible

land use with Mather Airport. For these reasons, the potential for hazards exposure under Alternative D is limited and considered less than significant.

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4.13 Noise

Methodology

The proposed alternatives have the potential to affect the existing ambient noise environment in the immediate project vicinity and along the roadway network to the project site due to the following noise sources:

- construction activities would cause short-term noise increases
- operation of future land uses may cause ambient noise levels to increase at sensitive receptors
- increases in traffic volumes on the local roadway network would result in higher noise levels along local roadways

Cumulative effects of aircraft operations at Mather Airport on sensitive receptors are discussed in **Section 4.16**. Stationary source noise impacts are assessed based on Sacramento County Code (Sacramento County, 2010) and a comparative analysis of the noise levels resulting from the four alternatives versus the noise levels under existing conditions. Analysis of temporary construction noise effects is based on typical construction phases and equipment noise levels and attenuation of those noise levels due to distances between sensitive receptors in the vicinity and the construction activity. Non-transportation-related noise impacts were assessed by examining the proposed uses on-site. Traffic noise impacts were estimated using spreadsheets based on the FHWA Traffic Noise Model (TNM) Lookup 2.5 model for calculating traffic noise levels (2007). Significance for traffic impacts was evaluated using FHWA's Noise Abatement Criteria (NAC). Airport noise impact criteria were determined by the Airport Comprehensive Land Use Plan for Mather Airport (ALUC, 1997).

4.13.1 Alternative A – Applicant's Preferred Alternative

Impact 13.1: Construction Noise

Development is proposed to occur over time with varying full build-out dates for each land use. There also remains the potential that, depending on the phasing and overall schedule, new noise-sensitive uses may be constructed, which could affect the proximity of construction noise sources to sensitive receptors. For example, Phase I of the University Village/Residential area is expected to construct the 175-acre educational facility and residential and retail development in the first three years. Phase II would follow Phase I and would then have Phase I residential uses in close proximity to construction activities.

Construction activity noise levels at and near the project site would fluctuate depending on the particular type, number, and duration of uses of various pieces of construction equipment. Construction activities associated with Alternative A would involve clearing, grading, excavation, and building. Lastly, construction-related material haul trips would raise ambient noise levels along haul routes. The level of increase would depend on the number of haul trips made and types of

vehicles used. **Table 4.13-1** shows typical noise levels during different construction stages. **Table 4.13-2** shows typical noise levels produced by various types of construction equipment.

**TABLE 4.13-1
TYPICAL NOISE LEVELS**

Construction Phase	Noise Level ^a (dBA, Leq)
Ground clearing	84
Excavation	89
Foundations	78
Erection	85
Finishing	89

a Average noise levels correspond to a distance of 50 feet from the noisiest piece of equipment associated with a given phase of construction and 200 feet from the rest of the equipment associated with that phase.

SOURCE: U.S. Environmental Protection Agency, 1971.

**TABLE 4.13-2
TYPICAL NOISE LEVELS FROM CONSTRUCTION EQUIPMENT**

Construction Equipment	Noise Level ^a (dBA, Leq at 50 Feet)
Dump truck	88
Portable air compressor	81
Concrete mixer (truck)	85
Scraper	88
Jackhammer	88
Dozer	87
Paver	89
Generator	76
Backhoe	85

a Average noise levels correspond to a distance of 50 feet from the noisiest piece of

SOURCE: Cunniff, 1977.

Construction would generate a substantial amount of noise corresponding to the appropriate phase of building construction and the noise generating equipment used during those phases. The nearest sensitive receptors to Alternative A construction are residential neighborhoods 600 feet to the east and 1,200 feet to the west. Noise from construction activities generally attenuates at a rate of 6 to 7.5 dBA per doubling of distance and thus other sensitive receptors in the vicinity would be exposed to construction noise at incrementally lower levels. Assuming an attenuation rate of 6 dBA per doubling of distance, the residences 600 feet from construction would be exposed to approximately 67 dBA Leq during the loudest of the activities that would occur during construction. This exceeds the Sacramento County daytime exterior noise ordinance standards of 55 dB. However, increased noise levels from construction would likely be entirely masked by existing traffic along Sunrise Boulevard at Anatolia. The residences located at Independence at Mather would be exposed to approximately 61 dBA Leq during the loudest construction activities which

would exceed the Sacramento County daytime exterior noise ordinance standards of 55 dB. This is considered a significant, adverse impact.

Construction-related material haul trips and vehicle traffic to and from construction sites could raise ambient noise levels along haul routes, thus affecting sensitive receptors along these routes. In particular, trucks generate noise levels of approximately 85 dBA at 50 feet. These trips and the associated noise would be short-term and intermittent over the course of any day where there is construction activity, as opposed to occurring throughout the day.

As construction noise could exceed the local exterior noise standard, this impact is considered significant and adverse. With implementation of the following mitigation, impacts would be reduced to a less-than-significant level.

Mitigation Measures

Measure 13.1a: Avoid Noise-sensitive Hours. In order to avoid noise-sensitive hours of the day and night, construction contractors would comply with the following:

- Construction activities would be limited to the daytime hours from 6 a.m. to 8 p.m., Monday through Friday, and 7 a.m. to 8 p.m. on Saturday and Sunday.

Measure 13.1b: Alert Public of Construction. To further address potential nuisance impacts of construction, construction contractors would implement the following:

- Signs would be posted at all construction site entrances upon commencement of construction, for the purposes of informing all contractors/subcontractors, their employees, agents, material haulers, and all other persons at the construction sites, of the basic requirements of Mitigation Measures 13.1a through 13.1c.
- Signs would be posted at the construction sites that include permitted construction days and hours, a day and evening contact number for the job site, and a contact number in the event of problems.
- An onsite complaint and enforcement manager would respond to and track complaints and questions related to noise.

Measure 13.1c: Reduce Impacts to Sensitive Receptors. The project proponent would require construction contractors to implement the following measures when construction activity is in close proximity to sensitive receptors:

- Equipment and trucks used for construction would use the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, engine enclosures, and acoustically-attenuating shields or shrouds, wherever feasible).
- Impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for construction would be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatic tools is unavoidable, a muffler on the compressed air exhaust would be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves would be used where feasible; this could achieve a reduction of 5 dBA. Quieter procedures, such as use of drills rather than impact tools, would be used whenever feasible.

- Stationary construction noise sources would be located as far from adjacent receptors as possible, and they would be muffled and enclosed within temporary sheds, incorporate insulation barriers, or other measures to the extent this does not interfere with construction purposes.

Impact 13.2: Operational Noise

Future noise levels associated with operation of Alternative A would likely result in increases relative to existing levels. The Sacramento County Code has exterior noise level standards of 55 dBA daytime/50 dBA nighttime as well as an interior noise level standard of 45 dBA. A summary of the expected operational noise associated with each area follows:

Airport Commercial

Airport commercial development would extend east, adjacent to the northwestern corner of Independence at Mather where sensitive receptors are located. It is possible that commercial and light industrial uses which could be developed in this area would exceed noise levels specified in the Sacramento County Code.

Economic Development

The Economic Development (aggregate extraction) area would be approximately 3,000 feet from the closest sensitive receptor – a school in the westernmost portion of Independence at Mather. It is possible that aggregate extraction would result in noise levels in excess of the Sacramento County Code.

Commercial Development

Residences are located north of the proposed Commercial Development area. Operational noise impacts associated with the Commercial Development area could potentially exceed the Sacramento County Code.

University Village/Residential

Components of the University Village/Residential area would generate noise from traffic, HVAC units, and typical maintenance noise such as lawn care. Operational noise impacts could potentially exceed the Sacramento County Code.

Parks/Recreation

Allowed County community facilities such as public parks and sports fields/courts expected in this land use area typically have limited hours of operation to prevent nuisance to neighboring residential areas. This land use is not anticipated to exceed the Sacramento County Code

Regional Sports Park

This land use area would create a large area subject to noise associated with sporting activities and potentially amplified sound. Operational noise impacts could potentially exceed the Sacramento County Code.

Roadways/Infrastructure

Operational noise from these areas would primarily consist of transportation noise which is discussed in Impact 13.3, below.

Preserve / Riparian Buffers

It is assumed that public uses associated with the Preserve and Riparian Buffer areas would be passive in nature (if any), and would not include motorized vehicle use or other substantial noise-generating equipment. This land use is not anticipated to exceed the Sacramento County Code

Increased noise levels associated with Airport Commercial, Commercial Development, Economic Development, University Village/Residential and Regional Sports Park are considered a significant and adverse impact. With implementation of the following mitigation, impacts would be reduced to a less-than-significant level.

Mitigation Measures

Measure 13.2a: Design to Reduce Noise Effects. The project proponent would ensure that all elements of the development comply with County Code. The proposed land uses would be designed so that on-site mechanical equipment (e.g., HVAC units, compressors, generators) and area-source operations (e.g., loading docks, parking lots, and recreational-use areas) are located as far as possible or shielded from nearby noise sensitive land uses to meet County noise standards.

Measure 13.2b: Restrict Operations. The following activity restrictions would be implemented to reduce operational noise effects:

- For maintenance areas located within 250 feet of noise-sensitive land uses, the operation of on-site landscape maintenance equipment would be limited to the least noise-sensitive periods of the day, between the hours of 6 a.m. to 8 p.m., Monday through Friday, and 7 a.m. to 8 p.m. on Saturday and Sunday.
- Any outdoor use of amplified sound systems would be designed to comply with County Code requirements.

Impact 13.3: Traffic Generated Noise

Most of the noise generated by the implementation of Alternative A would result from traffic. Alternative A would contribute to an increase in local traffic volumes, resulting in higher noise levels along local roadways. To assess the impact of traffic on roadside noise levels, noise projections were made using the FHWA TNM Lookup model and the traffic analysis provided by DKS Associates (Section 4.9). Traffic noise levels were analyzed for 12 roadway segments where speed limits range from 35 – 55 miles per hour. The segments analyzed and results of the modeling are shown in **Table 4.13-3**.

Traffic noise levels were analyzed for the following scenarios: Existing, Baseline, Baseline with Alternative A, B or C, 2035 Baseline, and 2035 with Alternative A, B or C. Weekday peak hour trips were estimated taking 10 percent of Average Daily Traffic levels as modeled in the traffic

section. As shown in **Table 4.13-3**, noise levels would not rise to significant and adverse levels with Alternative A as opposed to without Alternative A.

4.13.2 Alternative B and Alternative C

The impacts and mitigation for Alternatives B and C are essentially the same as those identified for Alternative A. **Section 4.1.2** explains the applicability of Alternative A impacts to Alternatives B and C.

4.13.3 Alternative D – No Permit Alternative

Impact 13.1 to 13.3: Construction and Operation Noise Effects

Under Alternative D airport commercial infill development at Mather Airport and aggregate extraction in the southwestern corner of the project site could occur. These uses could generate construction and operational noise, though at substantially reduced levels compared to Alternatives A, B and C. Unlike the development alternatives, no amplified sound and little landscape maintenance would be expected. With compliance with the Sacramento County Code impacts are expected to be less than significant.

References

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**TABLE 4.13-3
WEEKDAY PEAK-HOUR TRAFFIC NOISE LEVELS ALONG ROADWAYS IN THE PROJECT VICINITY – ALTERNATIVES A, B AND C**

Weekday Peak-Hour Noise Level, dBA, Leq								
Roadway Segment ^{1, 2}	Baseline	Baseline + Alternative A, B or C	Incremental Increase ⁴	Significant and Adverse? (Yes or No) ³	Cumulative 2035 Baseline	Cumulative 2035 + Alternative A, B or C	Cumulative Incremental Increase ⁵	Cumulatively Considerable? (Yes or No) ³
Bradshaw Road N of Jackson Road	62.0	62.2	0.2	No	64.0	64.1	0.1	No
Bradshaw Road S Jackson Road	63.4	63.6	0.2	No	67.5	67.5	0.0	No
Mather Field Road S of US 50	67.1	68.2	1.1	No	69.0	69.5	0.5	No
Excelsior Road N of Jackson Road	55.1	57.0	1.9	No	59.8	60.5	0.7	No
Zinfandel Dr. N of International Drive	61.5	64.0	2.5	No	64.3	64.9	0.6	No
Eagles Nest Road S of Douglas Road	N/A	58.8	N/A	No	53.8	59.3	5.5	No
Sunrise Blvd S of Folsom Blvd	70.9	70.9	0.0	No	71.0	70.9	-0.1	No
Sunrise Blvd S of White Rock Rd	67.4	68.0	0.6	No	70.7	71.4	0.7	No
Sunrise Blvd S of Douglas Rd	70.4	70.9	0.5	No	73.7	74.0	0.3	No
Jackson Road E of Bradshaw	63.6	63.9	0.3	No	71.0	71.0	0.0	No
Jackson Road W of Sunrise Blvd	63.2	63.8	0.6	No	67.6	67.8	0.2	No
Jackson Road E of Grant Line Road	65.1	65.6	0.5	No	66.2	66.3	0.1	No

1 Road center to receptor distance is between 75 – 125 feet for values shown in this table. Noise levels were calculated using the FHWA Traffic Noise Prediction Model (FHWA TNM) LookUp Program Software Version 2.1, 2007. Look-Up data (02/08/2007) generated by TNM Version 2.5- Prepared by US Department of Transportation, Research and Innovative Technology Administration, Volpe National Transportation Systems Center, Environmental Measurement and Modeling Division.

2 Vehicle mix percentage based on actual traffic counts during peak traffic hours December 16th and 17th, 2009.

3 Considered significant and adverse if the incremental increase in noise (Leq) is greater than 12 dBA in a noise environment of 67 dBA, as described in **Table 3.13-2**.

4 Incremental increase is the difference between the baseline + Alternative A, B or C and the baseline scenarios.

5 Cumulative incremental increase is the difference between the cumulative 2035 plus Alternative A, B or C and the cumulative 2035 baseline scenarios.

SOURCE: ESA, 2010; FHWA, 2007 and DKS Associates, 2010

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4.14 Aesthetics

Methodology

This visual impact analysis is based on field observations made in August 2010, a review of maps and aerial photographs, and photographs of the project site (see **Figures 3.14-1** through **3.14-3**). Analysis of each alternative's visual impacts takes into consideration the changes to the existing visual resources that would result from implementation. In determining the extent and implications of the visual changes, consideration was given to:

- specific changes in the visual composition, character, and qualities of the affected environment;
- the visual context of the affected environment;
- the extent to which the affected environment contains places or features that have been designated in plans and policies for protection or special consideration; and
- the sensitivity and access of viewers, their activities, and the extent to which these activities are related to the aesthetic qualities affected by changes related to the development.

4.14.1 Alternative A – Applicant's Preferred Alternative

Impact 14.1: Degradation of Existing Visual Character

Replacing an expanse of primarily undeveloped open space land with developed urban uses (University Village/Residential and a Sports Complex) would alter the visual character of the project site. Development of the University Village/Residential and the Sports Complex would result in the conversion of approximately 865 acres of open space grasslands. Views of the project site from Eagles Nest Road would be altered from grasslands to urban development. This area is also located within proximity of existing residential developments, including Independence at Mather and Anatolia to the east of the project site.

Motorists as well as nearby residents would perceive this conversion from open space grasslands to urban development as a substantial alteration of the visual character or quality of the site because one common type of viewshed found in the area (open space grasslands), with a moderate level of visual quality, would be replaced by another common local viewshed (urban). While the presence of urban development on the project site would be consistent with, and appear as a continuation of, development already existing on and surrounding much of the project site, the conversion of undeveloped land to urban development would likely be viewed as a substantial alteration of visual character as seen from Eagles Nest Road and from nearby residences. Rural areas and open space can be considered a valuable aesthetic resource that is representative of the visual character of much of rural Sacramento County. In general, the rural and open space character of vast expanses of undeveloped land is considered a community visual asset. Its reduction would, therefore, be an adverse effect.

Alternative A would include considerable protection of open space and parkland, which ameliorates the overall reduction of visually important open space. This alternative would retain approximately 1,500 acres of open space including a Preserve and the proposed Parks/Recreation area, although some of these areas would not be visible to existing or future viewer groups. This represents over 25% of the entire project site (over 2,000 acres of which is already developed).

Individuals may differ as to the aesthetic value of the open space lands on the project site, and whether development of urban uses on the project site would constitute a substantial degradation of the existing visual character or quality of the site and its surroundings. Given the scale of the proposed urban development and the somewhat rural nature of its setting, the reduction of rural open space currently visible from public views due to implementation of Alternative A is considered to be significant and adverse. With implementation of mitigation, impacts would be reduced to a less-than-significant level.

Mitigation Measure

Measure 14.1: Landscaping Plans. To reduce the impact of the urban, built environment on local views, landscaping plans would be developed for the University Village/Residential and Sports Complex land uses that would include vegetated setbacks along Kiefer Boulevard and Eagles Nest Road. The landscaping plan would be developed in accordance with Sacramento County's Landscaping Improvement Standards and other applicable design guidelines. The setback area would be planted with native, drought tolerant species common to the region where possible.

Impact 14.2: New Sources of Light and Glare

Light associated with urban development can result in spillover lighting and glare. Current sources of light and glare on the project site include Mather Airport, the Commerce Center, and Independence at Mather Residential development. Additionally, adjacent industrial, commercial, and residential land uses also create sources of light and glare in the area. The Preserve and Parks/Recreation uses are not expected to create new sources of light or glare in the project area, perhaps just safety lighting in the Parks/Recreation area. The Airport Commercial, Commercial Development, Regional Sports Park and University Village/Residential areas would likely create new sources of light and glare. These uses would require lighting of buildings, roadways, schools, outdoor sports playfields, parking lots, and other facilities. However, it is likely that required setbacks and landscaping along these roadways would provide effective buffers.

Replacing approximately 1,900 acres of open space that currently generates no significant sources of light or glare with urban uses including buildings, parking lots, and potential high-mast lighting for outdoor sports playfields, would contribute to obscuring views of the night sky and could spill over onto adjacent properties. This is considered a significant, adverse visual impact. With implementation of mitigation, impacts would be reduced to a less-than-significant level.

Mitigation Measure

Measure 14.2: Limit Fugitive Light and Implement a Lighting Plan. A lighting plan would be implemented and include the following measures to the maximum extent feasible:

- Exterior light fixtures would have minimized height and maximum spacing for safety, to reduce potential for backscatter into the nighttime sky and incidental spillover of light into adjacent properties and open space.
- Exterior lighting would be low-intensity and only used where necessary for safety and security purposes.
- Wherever possible, automatic shutoffs or motion sensors would be used for lighting features to further reduce excess nighttime light.
- All nighttime lighting would be downcast and shielded to prevent the light from illuminating anything other than the surface intended to be illuminated.
- Flood or area lighting needed for nighttime sporting activities would be located to avoid disturbing adjacent residential areas and passing motorists.
- Light fixture mountings would have non-glare finishes.

4.14.2 Alternative B and Alternative C

The impacts and mitigation for Alternatives B and C are essentially the same as those identified for Alternative A. **Section 4.1.2** explains the applicability of Alternative A impacts to Alternatives B and C.

4.14.3 Alternative D – No Permit Alternative

Impact 14.1: Degradation of Existing Visual Character

Development which could occur under this alternative would be completely surrounded by or directly adjacent to existing airport development and/or existing aggregate extraction. Under this alternative, open space grasslands on the eastern portion of the project site would not be converted to urban development. Therefore, Alternative D would not result in the degradation of the existing visual character of the project area and impacts would be less than significant.

Impact 14.2: New Sources of Light and Glare

Because development which could occur under Alternative D would be completely surrounded by or directly adjacent to existing sources of light and glare and because there are no sensitive receptors near the areas that would be developed under this alternative, new sources of light and glare associated with Alternative D would be less than significant.

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4.15 Indirect Effects

The Council on Environmental Quality Regulations for Implementing NEPA define indirect effects as effects “which are caused by the action and are later in time or farther removed in the distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems” (40 CFR §1508.8(b)). The discussion of indirect effects is integrated within **Sections 4.2** through **4.14** and in the cumulative discussion, **Section 4.16**. Examples include: air emissions and noise generated from traffic, indirect effects to habitat for vernal pool species and indirect greenhouse gas emissions from energy production. In addition, growth-inducing effects and effects from off-site utility and traffic improvements are discussed below.

4.15.1 Growth-Inducing Effects

Alternatives A, B and C

A growth-inducing effect is an effect which fosters (or removes a barrier to) economic or population growth. An example of direct growth inducement would be the construction of new housing. Examples of indirect growth inducement include establishing substantial new permanent employment opportunities and removing obstacles to population growth (e.g. the expansion or improvement of utilities which allows for more growth within the service area, such as a new water supply or additional wastewater conveyance and treatment capacity). Growth inducement itself is not an environmental effect, but it could lead to effects such as increased demand on public services and infrastructure, increased traffic and noise, degradation of air or water quality, or degradation or loss of special-status species habitat.

Indirect Growth from New Employment Opportunities

Alternatives A, B and C would create new employment opportunities which could result in additional housing and commercial demands. Housing demand could be generated if new employees desire to relocate to the area. As discussed in **Section 4.8**, due to availability of vacant housing and proposed residential development within the project site and surrounding vicinity, there is adequate housing to accommodate this demand in the region. Commercial growth could occur as the result of new employee wages, which could be used to purchase a range of other goods and services at common destinations such as grocery stores, gas stations, hardware stores, and restaurants. These purchases would be distributed throughout the region and would not necessarily be concentrated in the project site vicinity. In addition to existing development, planned commercial growth could help accommodate these purchases (**Table 4.16-1** provides a list of planned developments in the vicinity). Thus, impacts would be less than significant.

Alternative D

Indirect Growth from New Employment Opportunities

New employment opportunities could result from infill development at Mather Airport and aggregate extraction. As discussed in **Section 4.8**, due to availability of vacant housing and proposed residential development in the surrounding vicinity, there is adequate housing to accommodate this demand. Commercial growth from new employee wages would be distributed throughout the region and would not necessarily be concentrated in the project site vicinity. In addition to existing development, planned commercial uses in the project site vicinity could help accommodate these purchases (**Table 4.16-1**). Thus, impacts would be less than significant.

4.15.2 Off-Site Road and Utility Improvements

Alternatives A, B and C

Under Alternatives A, B and C, the project proponent would contribute to modifications, extensions and expansions of roadway and utility infrastructure outside of the project site. For example, proposed development typically pays a portion of regional water, wastewater and energy and traffic infrastructure costs. Traffic mitigation specific to Alternatives A, B and C, which includes the proposed widening of some roadways, is discussed in **Sections 4.9 and 4.16** and summarized in **Table 4.15-1**. These off-site roadway improvements may indirectly affect resources. No indirect effects related to offsite roadway improvements are expected for socioeconomic conditions, environmental justice or aesthetics.

Geology, Soils and Mineral Resources

The construction of roadway and utility improvements would require grading and the introduction of fill material to extend existing shoulders and roadbed. Earthwork could result in erosion of soils. Sacramento County Code 16.44 requires construction sites disturbing one or more acres or moving 350 cubic yards or more of earthen material to obtain a grading permit; the grading permit requires preparation and approval of an Erosion and Sediment Control Plan. In accordance with the Clean Water Act, construction of roadway and utility projects over one acre in area would be required to comply with the National Pollutant Discharge Elimination System (NPDES) Construction General Permit program including preparation of a Stormwater Pollution Prevention Plan (SWPPP) that would include soil erosion and sediment control practices to reduce the extent of exposed soil, prevent runoff from flowing across disturbed areas, slow runoff from the site, and remove sediment from any runoff. With standard construction practices and specifications required by the NPDES Construction General Permit program, construction of roads and utility lines are not expected to result in significant, adverse impacts to these resources.

Hydrology, Flooding and Water Quality

The development of roadway and utility improvements could affect water resources due to grading and construction activities and an increase in impervious surfaces. Potential effects include an increase in surface runoff and increased erosion that could adversely affect surface water quality due to increases in sediment and roadway pollutants such as grease and oil. As discussed

above, a SWPPP would be developed to comply with the NPDES General Construction Permit Program, which includes soil erosion and sediment control practices. Drainage features along the modified roadways would be sized to accommodate increased runoff. With the incorporation of best management practices (BMPs) identified in the SWPPP, for construction projects resulting in over one acre of disturbance, effects to water resources would be less than significant.

**TABLE 4.15-1
PROPOSED TRAFFIC MITIGATION – ALTERNATIVES A, B AND C**

Mitigation
Bradshaw Road and Old Placerville Road – Add an exclusive overlap right turn phase to the traffic signal operations at the northbound and westbound approaches.
Bradshaw Road and Jackson Road (SR-16) – Add a second eastbound left turn lane.
Routier Road and Old Placerville – Add a second eastbound left turn lane.
Mather Field Road and Rockingham Drive – Widen Mather Field Road to provide an exclusive northbound right turn lane and restripe the northbound approach. Additionally, restripe eastbound approach to provide an exclusive left turn lane and a shared through-right lane.
Zinfandel Drive and White Rock Road – Widen Zinfandel Drive to provide three northbound through lanes and a shared northbound through-right turn lane.
Eagles Nest Road and Jackson Road (SR-16) – With the proposed development, this intersection meets peak hour signal warrants. Therefore the identified mitigation is to construct a new traffic signal and provide a separate left turn lane and a shared through-right lane at all approaches.
Sunrise Boulevard and Douglas Road – Widen Douglas Road to provide a third eastbound through lane and restripe the eastbound approach. Additionally, add an overlap right turn phase to the traffic signal operations at the southbound and eastbound approaches.
Sunrise Boulevard and Jackson Road (SR-16) – The identified improvement is to widen Sunrise Boulevard to provide an exclusive northbound right turn lane and restripe the northbound approach.
Grant Line Road and White Rock Road – The following mitigation measure may not be necessary because the White Rock Road widening project currently underway would construct a signal at this location. Information relating to this public project is available on the Sacramento County website. If a signal is not constructed at this location before the development of Alternative A or B then the identified mitigation would be to construct a new traffic signal and provide a separate turn and through lane at all approaches.
Grant Line Road and Douglas Road – This intersection meets peak hour signal warrants. Therefore the identified improvement is to construct a new traffic signal and provide separate turn and through lanes at all approaches.
Zinfandel Drive and US-50 Eastbound Ramps – Convert the eastbound right turn lane into a free right lane by installing a right turn channelizing island.
Zinfandel Drive and Douglas Road – Widen Zinfandel Drive to provide a second southbound left turn lane and restripe the southbound approach. Additionally, add an overlap right turn phase to the traffic signal operations at the westbound approach.
Zinfandel Drive and Chrysanthy Boulevard – Add overlap phasing to the westbound right turn movement.
Rancho Cordova Boulevard and White Rock Road – Widen Rancho Cordova Boulevard to provide a second northbound left turn lane and restripe the northbound approach.
Mather Boulevard and Douglas Road – Construct a new traffic signal and provide separate turn and through lanes in the northbound and eastbound approaches. The southbound and westbound approaches would need dual left turn lanes and separate through and right turn lanes. The northbound and westbound approaches would also require an overlap right turn phase in the traffic signal operations.
Sunrise Blvd - Kiefer Blvd to Jackson Rd (SR-16) – Widen to a four lane arterial road.
Old Placerville Rd from Bradshaw Rd to Routier Rd) – Widen to a four lane arterial road.
Jackson Rd (SR-16) from Sunrise Blvd to Grant Line Rd – Widen to a four lane arterial road.

Air Quality and Global Climate Change

Development and modification of roadway and utility infrastructure would result in similar temporary, construction impacts discussed in **Section 4.4**. Similar BMPs would be utilized to reduce construction impacts. Proposed roadway development and modifications would reduce congestion and improve traffic flow. This would reduce emissions from the idling vehicles at these intersections and roadway segments resulting in improved conditions. Thus, overall impacts are not expected to be significant and adverse.

Biological Resources and Aquatic Resources

As discussed in **Section 4.5**, biological resources may be indirectly affected by development activities through the introduction of non-native invasive plant species, decreases in water quality due to erosion or sedimentation, changes in surface or subsurface hydrology, and an increase in human disturbance. Potential indirect effects to vernal pool habitats are summarized in **Tables 4.5-1** and **4.5-4**. Potential indirect effects to other special-status species, including raptors, valley elderberry longhorn beetle, western spadefoot, western pond turtle, and protected tree species are also evaluated in **Section 4.5**.

Construction of Alternatives A, B and C would generally avoid and preserve the highest quality habitats on the project site. As described in **Section 4.5**, habitats within the proposed Preserve may be indirectly affected by surrounding land uses if not carefully managed. This includes the need for the Wetland Management Plan to include measures to actively manage for the control of noxious weeds, feral animals, storm water quality, and unauthorized access.

To address potential indirect effects to sensitive habitats and species, **Section 4.5** includes a number of mitigation measures that would result in the avoidance or reduction of the magnitude of the above effects. With the implementation of these mitigation measures, indirect effects associated with onsite activities implementing Alternative A or B would be less than significant.

Off-site roadway and infrastructure modifications may affect habitats similar to those found on site, including vernal pools. These improvements would be subject to environmental review under local ordinances, including the California Environmental Quality Act (CEQA). For example, future sewer service to the project site may include the construction of the Mather Interceptor, per Sacramento Regional County Sanitation District's wastewater master plan. The Environmental Impact Report has already been prepared for this future improvement, and includes several mitigation measures for the avoidance and protection of habitat. With mitigation, significant, adverse impacts are not anticipated.

Cultural Resources

Development and modification of roadway and utility infrastructure have the potential to disturb previously undiscovered cultural resources. Impacts within the project site are discussed in **Section 4.7**. Similar impacts could occur off-site. Due to prior grading of existing roadways and disturbance within right-of-way it is likely that resources remaining in these areas are highly disturbed and lack integrity, thus diminishing the significance of the remaining resources. The lead agency under CEQA for off-site projects would be required to mitigate potential impacts to a

less than significant level or to issue a finding of fact and statement of overriding considerations of significant and adverse impacts could not be mitigated. Mitigation may include the avoidance of resources, the preservation of a key historical feature, or the removal, documentation, and curation of cultural resources. Thus, significant, adverse impacts are not expected.

Land Use and Agriculture

Roadway and infrastructure development and modifications would typically occur within existing rights-of-way; however small additional land acquisitions may be required adjacent to a right-of-way. As existing uses are setback from the road, the acquisition of peripheral pieces of property is not anticipated to change existing land uses or substantially affect agricultural land or operations and thus is less than significant.

Public Services, Utilities and Recreation

Development and modification of roadway and utility infrastructure could create temporary service disruptions to existing utility customers. These effects are common when upgrading and maintaining utility services, and would be temporary. Emergency access for police and fire services on roadways would be maintained throughout the construction period and thus indirect impacts would be less than significant.

Noise

Noise from development and modification of roadway and utility infrastructure would be temporary. Additionally, noise must be consistent with the Sacramento County Code (Chapter 6.68 Noise Control), which would reduce impacts to a less-than-significant level.

Hazards and Hazardous Materials

Development and modification of roadway and utility infrastructure could include potential hazards similar to other construction sites. Impacts would be minimized with adherence to standard operating procedures, such as refueling in designated areas, storing hazardous materials in approved containers, and clearing dried vegetation. Such procedures are commonly required by local agencies as part of a permit review and/or CEQA review for roadway and utility improvements; thus significant, adverse impacts are not anticipated.

Alternative D

Indirect effects under Alternative D are not anticipated as existing infrastructure may be used for serving the project site. The airport commercial and aggregate extraction areas are both disturbed or developed which would limit environmental effects for minor roadway access and utility extension connecting to the existing development at Mather Airport.

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4.16 Cumulative Effects

The cumulative analysis includes the effects of the Applicant's Preferred Alternative and other alternatives when combined with the impacts of past, present and reasonably foreseeable future projects. The purpose of this analysis is twofold: first, to determine whether the overall long-term impacts of all projects would be cumulatively significant and, second, to determine whether the Applicant's Preferred Alternative and other alternatives would cause a "cumulatively considerable" incremental contribution to a significant cumulative impact.

The CEQ regulations for implementing NEPA define the cumulative impact as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR §1508.7).

4.16.1 Scope of Resources Analyzed

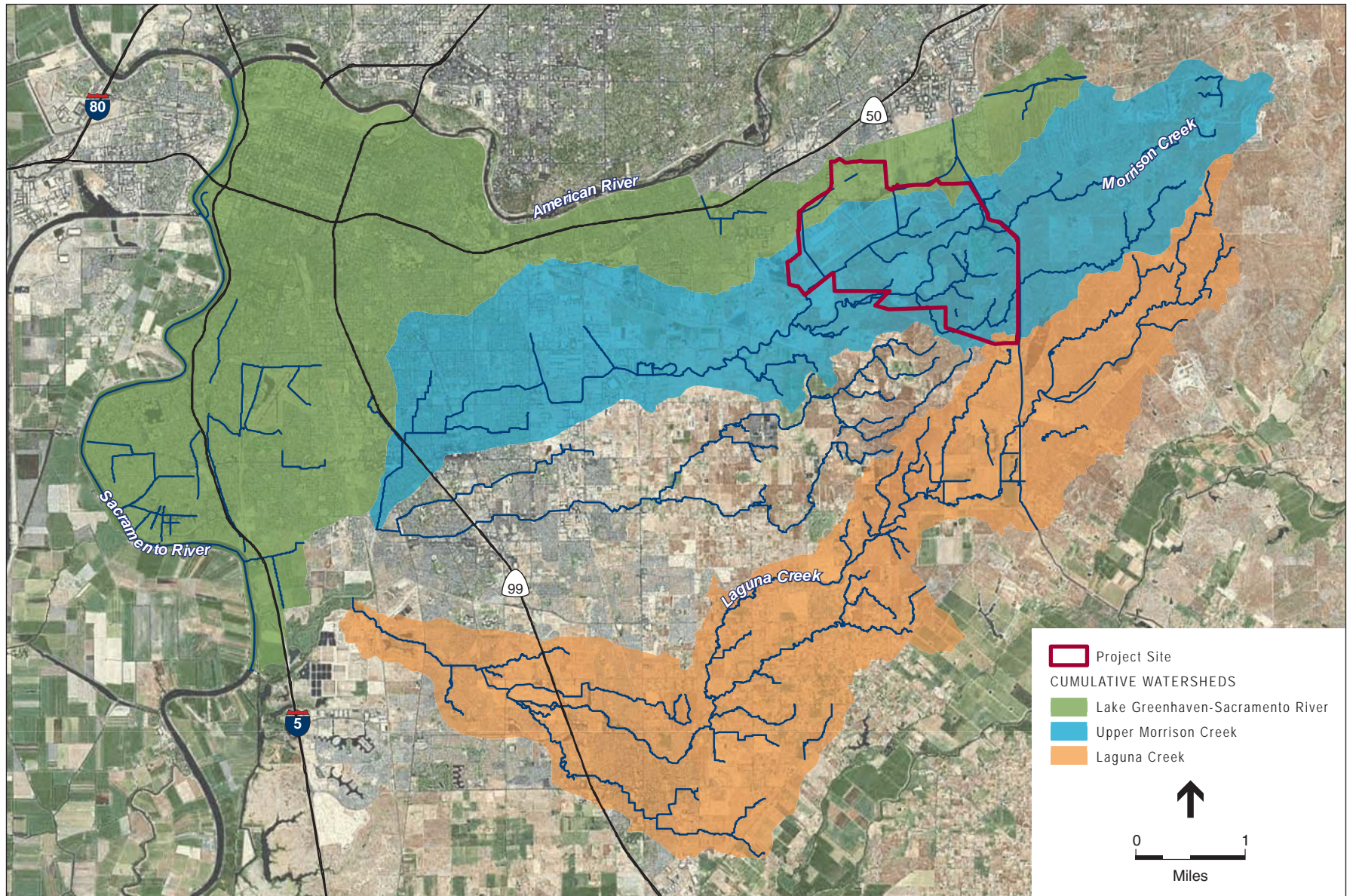
4.16.1.1 Geographic Boundary

The geographic area for the cumulative analysis varies depending upon the environmental issue and the geographic extent of the potential impact. The general geographic scope for the cumulative analysis is eastern Sacramento County, including areas of the City of Rancho Cordova. The scope of biological, aquatic and hydrologic issues is the multi-watershed area shown in **Figure 4.16-1**. The project site primarily contributes to the Morrison Creek watershed with smaller portions of the site located in the Laguna Creek and Lake Greenhaven-Sacramento River watersheds. The geographic boundary for each issue is specifically defined in **Section 4.16.3**, below.

4.16.1.2 Time Frame

In addition to the geographic scope, cumulative impacts are determined by the timing of other related projects. The projects described below may fluctuate due to schedule changes or other unknown factors. This analysis conservatively assumes, where applicable, that projects would be implemented concurrently with implementation of the alternatives under consideration. Construction time frames for the alternatives are discussed in **Chapter 2.0**.

The time frame of the cumulative effects analysis generally extends from 1993 to 2035. The 1993 Sacramento County General Plan changed the land use designation of large areas of Sacramento County from agricultural use to residential, commercial and industrial uses. Within this time frame the City of Rancho Cordova was incorporated, in 2003, and since has approved a substantial amount of mixed-use development (primarily residential) on land formerly designated for agriculture. The analysis extends to 2035 as long-range planning data from the Sacramento Area Council of Governments (SACOG) is available up through this year.



SOURCE: Bing Maps, 2009; USGS, 2010; City of Rancho Cordova, 2012; Sacramento County, 2012; and ESA, 2012

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Figure 4.16-1
Watersheds Evaluated in the Cumulative Impact Analysis

4.16.2 Past, Present and Reasonably Foreseeable Actions

4.16.2.1 Past Actions

Hydrology, Biological Resources and Aquatic Resources

Within the applicable time frame, large areas of agricultural and open space land within Eastern Sacramento County have been developed. Development has resulted in effects to the project site watersheds including modification of natural drainage patterns, loss of habitat (primarily grassland, aquatic, and riparian habitat), and adverse impacts to species associated with these habitats. Federal regulations including the Clean Water Act (CWA), Endangered Species Act and State regulations addressing water resource and species protection have minimized some impacts. For example, applicants requiring authorization under CWA Section 404 must demonstrate no net loss of waters of the U.S., usually through compensatory mitigation. However, compensatory mitigation for both habitat and species in Eastern Sacramento County has been conducted primarily on a project-by-project basis leading to a patchwork of habitat mitigation that overall has resulted in less cohesive and integrated high-functioning ecosystems (Sacramento County, 2010).

Specifically, the cumulative loss of habitat for vernal pool species in the region has been well documented (AECOM, 2009; USFWS, 2005). It is estimated that 75% to 90% of the historic California habitat for vernal pool species has been lost. Losses of this habitat type are primarily due to land development and agricultural practices; other factors contributing to species decline include invasive species, degradation of storm water quality, loss of pollinator species, unauthorized dumping, recreational uses (e.g. off-road vehicles) and climate change. These threats have had a significant and adverse impact on these species and habitats, contributing towards their decline.

The trend is towards further loss of habitat for vernal pool species within Sacramento County, where approximately 6,723 acres were lost between 1993 and 2005 (Holland, 2009). Between 1994 and 2005, the U.S. Fish and Wildlife Service conducted Section 7 consultations on impacts to almost 50,000 acres of habitat for vernal pool species across California with over half of the proposed loss (25,000 acres) attributed to residential, commercial and industrial development projects and the proposed loss of 15,000 acres attributed to intensive agricultural uses (USFWS, 2005).

Other Resource Areas

Development in eastern Sacramento County has also resulted in increased traffic, increased emissions of air pollutants in the Sacramento Valley Air Basin, changes of the visual landscape (from agricultural uses and open space to urban land uses) and increased need for public services.

4.16.2.2 Present and Reasonably Foreseeable Actions

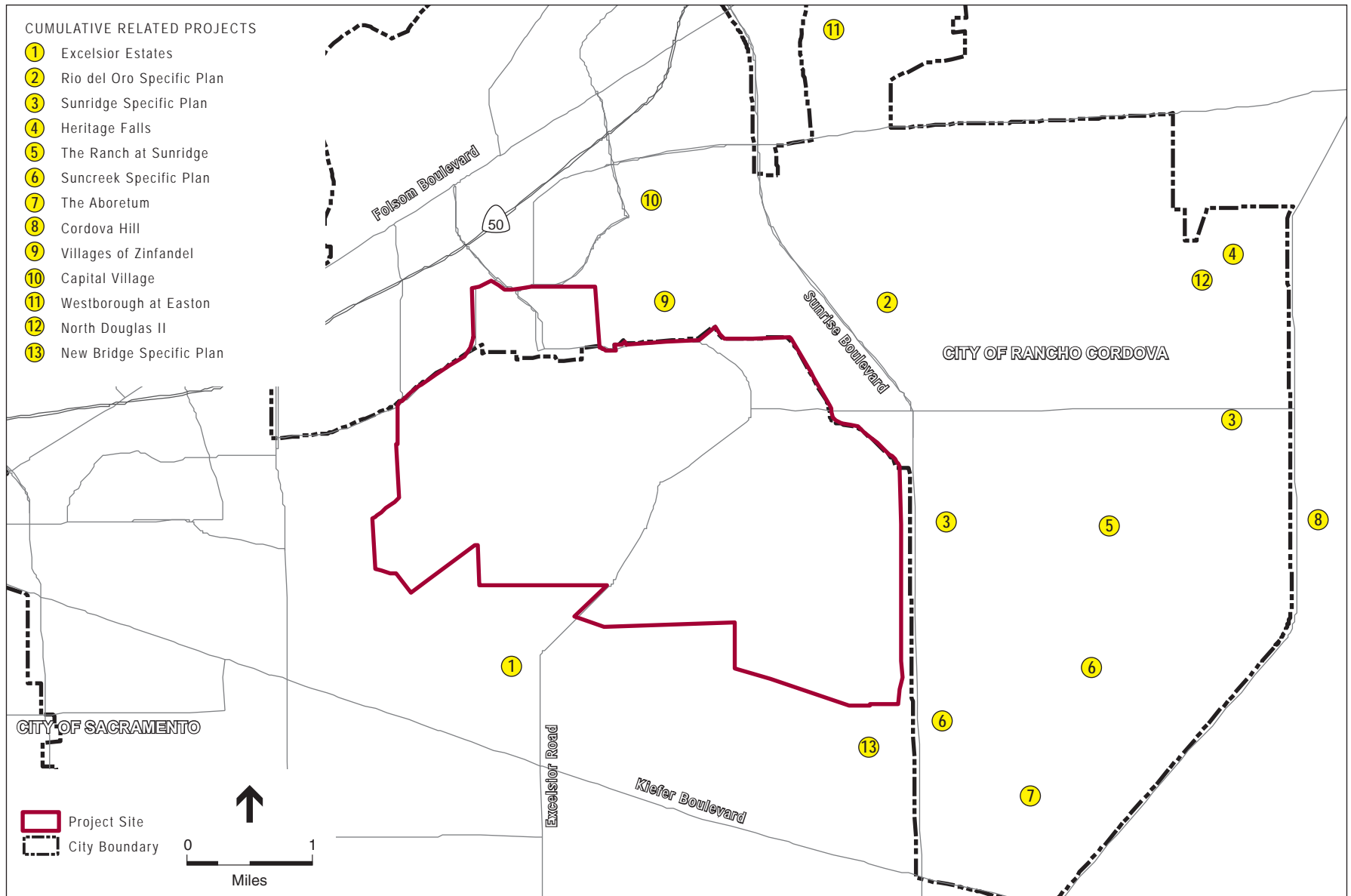
The cumulative scenario includes buildout assumptions within the SACOG Metropolitan Plan 2035, Sacramento County General Plan and City of Rancho Cordova General Plan. Specific projects in eastern Sacramento County which are under construction, approved or in the planning phase are

identified in **Table 4.16-1**. Projects within the same watersheds as the project site are shown on **Figure 4.16-2**.

**TABLE 4.16-1
PROPOSED AND APPROVED PROJECTS IN EASTERN SACRAMENTO COUNTY**

Project Name	Description	Acreage Total	Residential Units	Jurisdiction/Status
Watershed-Related Projects				
Excelsior Estates	Mixed-Use Community	862	4,400	Sacramento County/ Proposed
Cordova Hills	Mixed-Use Community	2,419	8,726	Sacramento County/ Proposed
Arboretum	Mixed-Use Community	1,349	5,119	City of Rancho Cordova/ Proposed
Capital Village	Mixed-Use Community	117	827	City of Rancho Cordova/ Under Construction
Heritage Falls	Mixed-Use Community	238	960	City of Rancho Cordova/ Proposed
The Ranch at Sunridge	Mixed-Use Community	530	1,757	City of Rancho Cordova/ Proposed
Rio del Oro Specific Plan	Mixed-Use Community	3,828	11,601	City of Rancho Cordova/ Approved
Suncreek Specific Plan	Mixed-Use Community	1,253	5,500	City of Rancho Cordova/ Proposed
Westborough at Easton	Mixed-Use Community	1,137	3,500+	City of Rancho Cordova/ Proposed
Villages of Zinfandel	Mixed-Use Community	545	1,833	City of Rancho Cordova/ Under Construction
New Bridge Specific Plan	Mixed-Use Community	725	3,025	Sacramento County/ Initial Planning Stages
Sunridge Specific Plan Area	Mixed-Use Community	2,606	10,000	City of Rancho Cordova Proposed or Pending Approvals– Arista del Sol Approved – Anatolia IV, SunRidge Lot J, Douglas 98 and 103, Grantline 208 Constructed/Under Construction – Anatolia I, II , and III, SunRidge Park, North Douglas I and Montelena
North Douglas II	Residential and Open Space	40	153	City of Rancho Cordova Approved
Projects Outside of Related Watersheds				
Florin Vineyard Gap Community Plan	Mixed-Use Community	3,766	8,950	Sacramento County Approved
Vineyard Springs Comprehensive Plan	Mixed-Use Community	2,650±	6,500	Sacramento County Approved
North Vineyard Station	Mixed-Use Community	1,595±	6,063	Sacramento County Approved
Easton Place at Easton	Mixed-Use Community	183	1,644	Sacramento County Approved
Glenborough at Easton	Mixed-Use Community	1,208	3,239	Sacramento County Approved

SOURCE: Sacramento County, 2012. City of Rancho Cordova, 2012.



SOURCE: USGS, 2010; and ESA, 2012

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Figure 4.16-2
Cumulative Related Projects

Hydrology, Biological Resources and Aquatic Resources

Present and reasonably foreseeable actions would continue the trend of urbanization of the watersheds in which the project site is located. Downstream surface water quality in Morrison and Laguna Creeks would likely continue to deteriorate from urban runoff contaminants, primarily from roadways and the use of pesticides and herbicides for landscaping.

There are approximately 573 acres of waters of the U.S. within the boundaries of proposed projects shown on Figure 4.16-2. Approximately 271 acres or 47% are proposed for fill (**Table 4-2**). Urbanization would also result in the loss of annual grasslands which provide habitat for several special-status wildlife species, including American badger, burrowing owl, white-tailed kite and Swainson's hawk. Although grassland habitats are regionally abundant in central California, this portion of Sacramento County has experienced substantial losses of grassland habitat due to residential and commercial development. Mitigation for impacts to biological and aquatic resources would primarily occur on a project-by-project basis. While mitigation would help to reduce net impacts, the overall result on the biological and aquatic environment would be irreversible modifications to natural drainage patterns and habitat communities.

**TABLE 4.16-2
SUMMARY OF CUMULATIVE IMPACTS TO WATERS OF THE U.S.**

Project Name	Total Waters of the U.S.	Acres of Waters of the U.S. Filled	Status
Excelsior Estates	39.81	28.77	Proposed
Cordova Hills	103.67	39.4	Proposed
Arboretum	116.86	31.75	Proposed
Capital Village	0	0	Under Construction
Heritage Falls	6.85	6.85	Proposed
The Ranch at Sunridge	21.42	10.24	Proposed
Rio del Oro Specific Plan	56.63	30.08	Approved
Suncreek Specific Plan	43.7	24.2	Proposed
Westborough at Easton	2.49	2.5	Proposed
Villages of Zinfandel	1.15	1.15	Under Construction
New Bridge Specific Plan	21.8	10	Initial Planning Stages
Sunridge Specific Plan Area	154.02	85.83	Proposed or Pending Approvals–Arista del Sol Approved – Anatolia IV, SunRidge Lot J, Douglas 98 and 103, Grantline 208 Constructed/Under Construction – Anatolia I, II, and III, SunRidge Park, North Douglas I and Montelena
North Douglas II	4.42	0.627	Approved
Total	572.82	271.40	

SOURCE: Sacramento County, 2012. City of Rancho Cordova, 2012.

The extent and diversity of vernal pool ecosystems and associated special-status species continue to decrease relative to historic patterns. The construction of related infrastructure including roadways and utility projects continues to contribute to the loss and fragmentation of vernal pool

plant and crustacean populations. Aggregate extraction is another contributor to habitat loss, though to a lesser extent. Some losses have been offset by compensation which includes preservation and long term management of habitat for vernal pool species through consultation pursuant to Section 7 of the Federal Endangered Species Act.

Approximately 1,362 acres of the project site are located within the Mather Core Area of the Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon (USFWS, 2005), which is a Zone 1 core area having the highest priority for recovery. The Sunridge Properties Final EIS identified 41 projects which have occurred or are anticipated to occur in the Mather Core Recovery Area (USACE, 2010). These projects are collectively estimated to include 545 acres of vernal pools. Approximately 38.5% (210 acres) have been directly impacted or are proposed to be directly impacted. Approximately 11% (60 acres) could be indirectly affected. Collectively these projects have preserved or propose to preserve 175 acres of habitat for vernal pool species on-site and 205 acres of habitat for vernal pool species off-site. Approximately 29 acres have or are proposed to be created/restored within the Mather Core Recovery Area, while a larger number, 167 acres, have or are proposed to be created/restored outside of the Mather Core Recovery Area. Each of these projects would have to mitigate for their impacts according to USACE and USFWS guidelines.

Two vernal pool conservation banks have been approved by the USFWS within the Mather Core Recovery Area for sale of Vernal Pool Ecosystem Preservation credits: Bryte Ranch and the Sunrise Douglas Conservation Bank. There are a number of other regional conservation, preservation, and mitigation banks outside of the Mather Core Recovery Area, which have been approved by the USFWS and/or USACE. The proposed 585-acre Deer Creek Mitigation Bank near Kiefer Boulevard and Jackson Highway would be partially located within the Mather Core Recovery Area; however, this bank has not yet been approved.

Other Resource Areas

Growth in Sacramento County continues, primarily in the cities of Elk Grove and Rancho Cordova and in the community of Natomas where there is available land within the Urban Services Boundary. The Sacramento County General Plan was updated in 2011 and included several new growth areas proposed for urban development. Urban development in the project site vicinity continues to contribute to increased demands for surface and groundwater supply, increased traffic and associated mobile air quality emissions and traffic noise, effects to natural visual resources from urbanization, and increased emissions of criteria air pollutants, toxic air contaminants and greenhouse gases.

4.16.3 Cumulative Analysis for Alternatives A, B and C

The specific impacts discussed below are impacts for which Alternatives A, B and C might result in a “cumulative considerable” contribution to a significant cumulative impact. Therefore some of the impacts analyzed in Sections 4.2 through 4.14 are not carried forward for evaluation in the cumulative effects analysis. The impacts included in the cumulative analysis are listed in **Table 4.16-3** along with the geographic scope for cumulative effects for the applicable resource area.

**TABLE 4.16-3
CUMULATIVE IMPACTS SUMMARY**

Resource Area	Cumulative Impacts	Geographic Scope
Geology, Soils and Mineral Resources	Impact 16.1: Loss of Mineral Resources	Eastern Sacramento County
Hydrology Flooding and Water Quality	Impact 16.2: Operation Period Water Quality Degradation	Morrison Creek, Laguna Creek, and Lake Greenhaven-Sacramento River watersheds
	Impact 16.3: Changes in Drainage and Flooding Patterns	
Air Quality and Global Climate Change	Impact 16.4: Effects from Operational Emissions with Respect to Criteria Pollutants, Carbon Monoxide and Toxic Air Contaminants	The Sacramento Valley Air Basin for air quality and the project site for global climate change
	Impact 16.5: Objectionable Odors	
	Impact 16.6: Effects from Greenhouse Gas Emissions	
	Impact 16.7: Climate Change Impacts to the Project Site	
Biological Resources	Impact 16.8: Effects to Federally Listed Vernal Pool Species and Critical Habitat	Morrison Creek, Laguna Creek, and Lake Greenhaven-Sacramento River watersheds
	Impact 16.9: Effects to Special-Status Species	
Aquatic Resources	Impact 16.10: Effects to Wetlands and Other Waters of the U.S.	Morrison Creek, Laguna Creek, and Lake Greenhaven-Sacramento River watersheds
Socioeconomics	Impact 16.11: Consistency with Growth and Housing Demand Assumptions	Eastern Sacramento County
Transportation and Traffic	Impact 16.12: Sacramento County Intersection and Roadway Performance	Transportation Analysis Study Area (Figure 3.9-1)
	Impact 16.13: City of Rancho Cordova Intersection and Roadway Performance	
	Impact 16.14: Caltrans Intersection and Roadway Performance	
Public Services, Utilities and Recreation	Impact 16.15: Increased Demand on Public Services, Utilities, Schools and Recreation Facilities	The service boundaries for the specific providers.
Hazards	Impact 16.16: Potential Human Health Hazards Associated with Mosquito-Borne Diseases	Eastern Sacramento County
Noise	Impact 16.17: Traffic Generated Noise	Transportation Analysis Study Area (Figure 3.9-1) for traffic and project site for airport noise.
	Impact 16.18: Airport Noise Impacts on Proposed Development	
Aesthetics	Impact 16.19: Degradation of Existing Visual Character and New Sources of Light and Glare	Eastern Sacramento County

4.16.3.1 Geology, Soils and Mineral Resources

Impact 16.1: Loss of Mineral Resources

Most of the land within eastern Sacramento County contains mineral deposits, unless they have previously been extracted. Only a small portion of eastern Sacramento County is underlain by known, high quality mineral resources that are available for extraction. Proposed development

over areas underlain by high quality mineral resources could be cumulatively significant as these resources are becoming increasingly scarce. Alternatives A, B and C propose aggregate extraction in an area identified as having known, high quality mineral resources. There are also known, high quality mineral resources beneath the proposed Preserve and the proposed Airport Commercial area east of the Mather Airport runway. Aggregate extraction in the Preserve would adversely affect high quality vernal pools and swales, which provide critical habitat for federally-listed species. Due to the distance from existing infrastructure (conveyor belts and processing plant for aggregate materials) it would not be economically feasible to extract resources from the Airport Commercial area. As Alternatives A, B and C allow for development of aggregate resources where it is feasible and would not directly affect vernal pool resources, the impact of Alternatives A, B and C on mineral resources is not cumulatively considerable.

4.16.3.2 Hydrology, Flooding and Water Quality

Impact 16.2: Operation Period Water Quality Degradation

Cumulative stormwater discharges from residential and industrial areas are of concern in managing surface water quality in the applicable watersheds. Pollutants that accumulate in upland areas during the dry summer months such as oil, grease, pesticides and herbicides often reach surface waters during the first major autumn storm event. Downstream portions of Morrison Creek are listed as impaired for chlorpyrifos and diazinon, two insecticides that are no longer approved for residential use.

Morrison Creek could be cumulatively affected by Alternative A, B or C, as the project site directly drains to this waterway. Alternatives A, B and C all include riparian buffer areas surrounding major waterways to help attenuate and treat runoff before reaching surface waters. Additionally, various mitigation measures and BMPs would be employed to minimize pollutant discharges. No suite of BMPs and mitigation measures is completely effective in eliminating pollutant discharges; therefore, it is anticipated that Alternatives A, B and C could contribute toward cumulative stormwater pollution. These pollutants would likely include sediment, oil and grease, herbicides and pesticides. However, the release of these pollutants would not contribute to existing water quality impairments for diazinon and chlorpyrifos along Morrison Creek, because diazinon and chlorpyrifos would not be used on site. Even with compliance with stormwater quality regulations, Alternative A, B or C, in conjunction with other planned development, would result in a cumulatively considerable contribution to decreased surface water quality in Morrison Creek and other downstream waters.

Impact 16.3: Changes in Drainage and Flooding Patterns

A watershed's runoff characteristics are altered when impervious surfaces replace natural cover. Changes in the quantity of runoff may increase stream volumes, increase velocities, increase peak discharges, and shorten the time to peak flows. As Sacramento County and the City of Rancho Cordova require that stormwater treatment and detention for new development are designed to maintain pre-development flows off-site, the contribution of Alternatives A, B and C when considered with other projects is not anticipated to be cumulatively considerable.

4.16.3.3 Air Quality and Global Climate Change

Impact 16.4: Effects from Operational Emissions

Activities associated with development of the project site would result in increased air emissions of ROG, NO_x, and PM₁₀, PM_{2.5} and CO. Emissions from ROG and NO_x would exceed the local thresholds for these pollutants. Alternative A, B and C, in conjunction with other planned development, would result in a cumulatively considerable contribution to long-term increases in emissions. Incorporation of Mitigation Measure 4.2 would reduce operational emissions, but impacts would remain cumulatively considerable.

Impact 16.5: Objectionable Odors

The Sacramento Rendering Company plant is located at 11350 Kiefer Boulevard, just south of the project site's eastern boundary. The project site is within the SMAQMD odor screening criteria distance for a rendering plant, which is four miles (SMAQMD, 2009). The SMAQMD generally considers odor sources to have a substantial number of odor complaints if they have one confirmed complaint per year averaged over a 3-year period or three unconfirmed complaints per year averaged over a 3-year period. According to SMAQMD, the Sacramento Rendering Company has had 268 odor complaints since July of 2007 (SMAQMD, 2010). The Sacramento Rendering Company plant therefore represents a significant source of odor, and development of additional sensitive receptors under Alternatives A, B and C would contribute to a cumulatively considerable impact. Mitigation Measure 4.6b is recommended to reduce the contribution of the alternatives to a less-than-significant level.

Measure 16.5: Reduce Odor Impacts from Sacramento Rendering Plant. If the Sacramento Rendering Company plant would be in operation during occupancy of proposed residential development, the following measures would be implemented:

- Residential land uses would be set back as far as possible from the boundary of the rendering plant.
- The deeds to all properties located within the project area that are within four miles of the rendering plant would be accompanied by a written disclosure from the transferor, in a form approved by the County, advising any transferee of the potential adverse odor impacts from nearby rendering operations.

Impact 16.6: Effects from Greenhouse Gas Emissions

Impacts associated with GHG emissions are considered to be exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective (CAPCOA, 2008). Appendix C contains information regarding assumptions and emissions calculations used in this analysis.

As shown in **Table 4.16-4**, increased GHG emissions from operation of Alternatives A, B and C would be approximately 262,731 metric tons/year CO₂E. Alternatives A, B and C would generate GHG emissions that would substantially exceed the major source threshold (25,000 metric tons/year CO₂E), it would generate sufficient emissions of GHGs to contribute considerably to

the cumulative effects of GHG emissions such that it would impair the state's ability to implement AB 32. This impact would be significant and adverse. Even with mitigation, the emissions related to Alternative A, B or C would remain cumulatively significant and adverse because of the large size of the development and related substantial GHG emissions.

**TABLE 4.16-4
OPERATIONAL GREENHOUSE GAS EMISSIONS - ALTERNATIVES A, B AND C**

GHG Sources	Greenhouse Gas Emissions (metric tons/year) ¹ CO ₂ e
On-road Vehicles	198,583
Area Sources	14,854
Quarry Off-road Equipment	774
Indirect Emissions from Electricity Generation	48,520
Total Unmitigated Emissions (metric tons/year)	262,731

1. Emissions were modeled using several models and emission factors, which are described in more detail in Appendix C. These models and emission factors include URBEMIS2007 for on-road vehicle exhaust and area sources. Indirect emissions from electricity generation were estimated based on emission factors in the Local Government Operations Protocol (ARB, 2008)

SOURCES: ARB, 2008.

Mitigation Measures

Measure 16.6: GHG Emission Control Measures. The project proponent would incorporate Green Building and Development Measures as listed in **Appendix F**. Each increment of new development within the project site requiring a discretionary approval from the County (e.g., proposed tentative subdivision map, conditional use permit), would demonstrate that GHG emissions from construction and operation would be reduced by 30 percent from business-as-usual 2020 emissions levels.

Impact 16.7: Climate Change Impacts

The Intergovernmental Panel on Climate Change (IPCC) reports that mean sea level could rise by approximately 12 to 36 inches by the year 2100 (IPCC, 2007). However, the action area is located a substantial distance from the ocean, and as a result, it is unlikely that erosion or an increase in flooding as a result of climate-induced sea level rise would affect the area.

As discussed in **Section 3.3, Hydrology and Water Quality**, the Federal Emergency Management Agency has not completed floodplain delineation and mapping of the action area. Although it is anticipated that some flooding could occur in the proposed Parks and Recreation area or Preserve(s) areas during a 100-year event, the extent to which such flooding would occur, and the land area that could potentially be inundated, is not presently known. Habitable structures are not proposed for development in the vicinity of Morrison Creek where potential flooding could occur. Cumulative impacts of climate change on the action area thus are not anticipated.

Climate change could intensify the cumulative biological and aquatic impacts discussed below.

4.16.3.4 Biological Resources

Impact 16.8: Effects to Federally Listed Vernal Pool Species and Critical Habitat

As described and quantified in **Section 4.16.2.2**, proposed development in eastern Sacramento County and in the Mather Core Recovery Area in specific, would result in significant impacts to habitat for vernal pool species, including habitat which is considered critical for species recovery. Past, present and reasonably foreseeable development in the Mather Core Recovery Area is anticipated to result in direct impacts to 38.5% (210 acres) and indirect impacts to 11% (60 acres) of the approximately 545 acres of vernal pools included within proposed development areas. As discussed above, the more severe the alteration and destruction, the more difficult it is to recover such areas in the future due to disruption of soil formations, hydrology, seed banks, and other components of a functional vernal pool ecosystem. Though project-specific mitigation would minimize some impacts there would still be temporal losses as habitat creation or enhancement takes time to achieve. Many projects propose off-site mitigation, and many projects within the Mather Core Recovery Area propose mitigation outside of the Mather Core Recovery Area, resulting in increased habitat fragmentation when compared to existing conditions. As approximately 76% of the vernal pool compensatory mitigation has or is proposed to occur outside the Mather Core Area, a permanent loss of vernal pool functions would occur in the Mather Core Area, and the habitat preservation goals of the USFWS Recovery Plan are not anticipated to be met.

As described in **Section 4.5**, Alternatives A, B and C would directly affect federally-listed species through the permanent loss of 31.82, 31.38 and 25.11 acres of suitable habitat (respectively). These species would also be indirectly affected by Alternatives A, B and C through potential adverse effects to surface water quality and flow, introduction of exotic species, and an increase in human presence and activities on the project site. Of these species, vernal pool fairy shrimp and vernal pool tadpole shrimp are known to occur in the action area. Alternatives A and C would directly affect 3.27 acres of critical habitat for vernal pool tadpole shrimp and fairy shrimp within the USFWS designated Mather Core Recovery Area. Alternative B would directly affect 6.36 acres of critical habitat within the Mather Core Recovery Area. Alternatives A, B and C propose Preserve and Riparian buffer areas which would be actively managed under the guidance of a Wetlands Management Plan.

Loss of habitat for vernal pool species from implementation of the project alternatives in combination with projected losses from past, present and reasonably foreseeable projects constitutes a cumulatively significant reduction in habitat for vernal pool species in the region. While there is mitigation planned to compensate for the loss of vernal pool acreage with constructed vernal pools, two major concerns remain: that the performance of off-site constructed pools would not adequately replace the habitat functions of the original vernal pools, and that, even if the habitat functions were being replaced, the vernal pool complexes may still become degraded. Thus, even with mitigation, the cumulative loss of habitat for vernal pool species that would occur under Alternative A, B or C is cumulatively considerable.

Impact 16.9: Effects to Special-Status Species

Cumulative impacts to waters of the U.S. are discussed under Aquatic Resources as well as the previous discussion regarding habitat suitable for vernal pool species. Other species which would be cumulatively affected by losses to these resources include western spadefoot and western pond turtle. Three special-status plant species associated with vernal pools, Bogg's Lake hedge-hyssop, Ahart's dwarf rush, and legenere, have been identified in the action area. Vernal pools containing Bogg's Lake hedge-hyssop, Ahart's dwarf rush, and two of the four legenere populations would be located within the proposed Preserve. The remaining two known populations of legenere are found in pools that would be directly affected by the proposed University Village / Residential land use. The project site also provides suitable habitat for Sanford's arrowhead, although previous surveys have not identified this species onsite. As the cumulative loss for vernal pool species and aquatic resources was considerable, it would be a considerable loss for these species as well.

In addition, this project, when combined present and reasonably foreseeable projects, has the potential to contribute to the fragmentation and loss of large tracts of annual grassland habitat. These areas provide habitat for several special-status wildlife species, including American badger, golden eagle, burrowing owl, white-tailed kite, and Swainson's hawk. Although grassland habitats are regionally abundant in central California, this portion of Sacramento County has experienced substantial losses of grassland habitat due to residential and commercial development. Alternatives A, B and C propose to convert between 1,263 and 1,430 acres or between 45% to 51.4% of annual grasslands within the project site. Large areas of annual grassland habitat would be preserved within the proposed Preserve. These areas contain the highest quality grasslands within the project site, would be preserved in perpetuity, and would be managed under a Wetlands Management Plan with goals to protect and enhance habitat conditions. Even with mitigation, however, the loss of large areas of grassland under Alternatives A, B and C, when considered with additional losses in the project site watersheds from present and reasonably foreseeable projects, is cumulatively considerable.

4.16.3.5 Aquatic Resources

Impact 16.10: Effects to Wetlands and Other Waters of the U.S.

As discussed in **Section 4.16.2**, past, present and reasonably foreseeable projects within eastern Sacramento County and the project site watersheds have filled or propose to fill approximately 47% of waters of the U.S. within the respective projects' development area. While individual projects are required to mitigate for losses there would be a net loss of wetland function within the project site watersheds. Additional impacts would result from roadway and infrastructure improvements related to cumulative development.

Alternatives A, B and C would contribute to the direct loss of wetlands and other waters of the U.S., including vernal pools and swales, seasonal wetlands, ephemeral and intermittent channels, and drainage ditches. There are approximately 114.93 waters of the U.S. within the action area. Alternative A proposes fill of 40.25 acres (35%) with preservation of 74.68 acres (65%). Alternative B

proposes fill of 39.64 acres (34%), preservation of 67.56 acres (59%) and avoidance of 7.72 acres (7%). Alternative C proposes fill of 33.65 acres (29%) and preservation of 81.28 acres (71%). The action area when added to the area of present and reasonably foreseeable developments includes approximately 688 acres of waters of the U.S.¹ Alternatives A and B propose fill of approximately 6% of waters within areas of proposed and approved projects (**Table 4.16-2**) and Alternative C proposes fill of approximately 5%. This is considered a significant contribution to cumulative impacts to aquatic resources.

On-site preservation under Alternatives A, B and C includes wetlands that provide the highest function and services on the project site. Alternatives A, B and C would include active management of the Preserve and Riparian Buffer areas under the guidance of a Wetlands Management Plan.

Considering the rate of development in Sacramento County and, specifically within the Morrison and Laguna Creek watersheds, and the limited amount of undeveloped, unspoken for land that supports existing wetlands that could be preserved, or that is suitable for creation of compensatory aquatic features, it may not be possible to fully mitigate the loss of habitat functions and services provided by the aquatic habitats that would be lost in the project site watersheds. Thus, even with mitigation, including full compensation for loss of waters of the U.S., Alternatives A, B and C would represent a cumulatively considerable loss of waters of the U.S. in eastern Sacramento County.

4.16.3.6 Socioeconomics and Environmental Justice

Impact 16.11: Consistency with Growth and Housing Demand Assumptions

As discussed in **Section 4.8**, Alternatives A, B and C would develop housing consistent with planned growth in unincorporated Sacramento County. While Alternatives A, B and C provide new employment opportunities, a housing shortage would not be anticipated as these alternatives include residential development in addition to a large supply of housing planned primarily in the City of Rancho Cordova (Table 4.16-1). For these reasons, Alternatives A, B and C would not result in cumulatively considerable impacts related to growth and housing demand.

4.16.3.7 Transportation and Traffic

The transportation study area is shown on **Figure 3.9-1**. To assess cumulative impacts, the trip distribution and extent of reach of the other cumulative project trips were added to the cumulative condition and assessed.

In addition to the background year 2035 traffic, the baseline scenario includes the trip generation associated with several quarries proposed for operation in eastern Sacramento County. Under 2035 baseline cumulative condition, several roadway facilities and intersections would operate at unacceptable Level of Service (LOS) conditions as identified in Tables 23 through 26 of **Appendix E**, meaning that the region would experience cumulative impacts to the traffic network

¹ 114.93 acres within the action area combined with 572.82 acres within present and foreseeable development areas (Table 4.16-2)

even under the No Permit Alternative. The operating conditions of these affected facilities are also provided in Tables 23 through 26 of Appendix E.

Impact 16.12: Sacramento County Intersection and Roadway Performance

With mitigation discussed in **Section 4.9**, all affected County of Sacramento roadway segments and/or intersections would operate at acceptable levels of service or experience only minor deficiencies in LOS that would not trigger cumulatively significant impacts.

Impact 16.13: City of Rancho Cordova Intersection and Roadway Performance

While most City of Rancho Cordova roadway segments and intersections would operate at acceptable levels of service, several facilities would experience a deficiency, with nine intersections and seven roadway segments experiencing unacceptable levels of service that would result in cumulatively significant impacts under Alternatives A, B and C. With implementation of roadway improvements listed under Mitigation Measure 4.16.3, cumulative impacts to City intersections and roadways would be reduced. However, as discussed in Section 4.9, not all recommended improvements are feasible for several reasons, including limited right-of-way. Consequently, even with mitigation, the contribution of traffic from Alternatives A, B and C when considered with other developments would result in cumulatively considerable impacts to City intersections and roadways.

Measure 16.13: Contribute to City of Rancho Cordova Intersection Improvements. The project proponent would provide contributions for improvements to the following City of Rancho Cordova roadway network facilities (see Appendix E for specific improvements):

- Bradshaw Road and Old Placerville Road
- Routier Road and Old Placerville
- Mather Field Road and Rockingham Drive
- Zinfandel Drive and White Rock Road
- Sunrise Boulevard and Douglas Road
- Zinfandel Drive and Douglas Road
- Zinfandel Drive and Chrysanthy Boulevard
- Rancho Cordova Boulevard and White Rock Road
- Mather Boulevard and Douglas Road

Impact 16.14: Caltrans Intersection and Roadway Performance

As detailed in Appendix E, the increase in traffic associated with development proposed under Alternatives A, B and C would contribute towards a significant cumulative impact to the level of service of one freeway intersection (US 50 – East Bound Ramp and Zinfandel Drive), four freeway mainline segments and three merge/diverge/weaving areas. The unacceptable LOS for Caltrans roadway facilities is considered a significant cumulative impact. With implementation of

Mitigation Measures 4.9.3 and 4.16.4 (below) cumulative impacts to the affected Caltrans intersection and the Eastbound diverge to Mather Field Road Off-Ramp could be reduced to less-than-significant levels. However, for the four affected Caltrans freeway mainline segments and the remaining two merge/diverge/weaving area operating conditions, roadway improvements are currently not feasible due to specific design and/or environmental considerations associated with each affected facility. Consequently, the contribution of traffic under Alternatives A, B and C when considered with other development would be cumulatively considerable even with mitigation.

Mitigation Measure

Measure 16.14: Contribute to Caltrans Roadway Facility Improvements. The project proponent would provide contributions for improvements to convert the eastbound right turn lane into a free right lane by installing a right turn channelizing island at Zinfandel Drive and US-50 Eastbound Ramps.

4.16.3.8 Public Services, Utilities and Recreation

Impact 16.15: Increased Demand on Public Services, Utilities, Schools and Recreation Facilities

Water service for the project site and surrounding area is addressed in Sacramento County Water Agency's Water System Infrastructure Plan (2006) and Zone 40 Water Supply Master Plan (2005). The project site is within a water service area which is expected to be accommodated by the expanded 100-MGD Vineyard Surface Water Treatment Plant. Because water infrastructure improvements consider the cumulative demands of the currently planned projects in the region, Alternatives A, B and C would not result in cumulatively considerable impacts to water supplies.

Wastewater service at buildout is addressed in Sacramento County Regional Sewer District's (SCRSD) Interceptor System Master Plan (2000). The Master Plan indicates that a majority of the project site and surrounding area would be served by the Mather Interceptor, for which construction timing is uncertain. In addition, wastewater demand of Alternatives A, B or C, in conjunction with other foreseeable projects, is anticipated to exceed the capacity of the existing Sacramento Regional Wastewater Treatment Plant (SRWTP). The proposed 2020 Master Plan for the SRWTP anticipates an expanded capacity of 218 MGD, which could serve development in the long-term. However, the Master Plan has not yet been approved due to litigation (Sacramento County, 2010). With Mitigation Measure 4.11.1, the project proponent would be required to coordinate with Sacramento Area Sewer District and SRCSD to ensure that adequate wastewater service could be provided without exceeding the capacity of wastewater infrastructure and treatment facilities prior to construction. As any other future development in the region would also be required to prepare design-level studies to ensure adequate wastewater service, Alternatives A, B and C would not result in cumulatively considerable impacts to wastewater service.

As discussed in **Section 4.11**, the Kiefer Landfill is anticipated to have capacity to serve present and reasonable foreseeable development until 2035 or later, thus there would not be cumulatively considerable impacts related to solid waste disposal.

Electricity and natural gas are supplied in accordance with approved tariffs with the California Public Utilities Commission, typically on a first-come, first-served basis. Further coordination with SMUD and West Coast Gas would be required as specified in Mitigation Measure 11.4. Alternatives A, B and C would not contribute to significant, adverse cumulative impacts to electrical and natural gas service.

Current and planned projects would contribute to the funding of public services, including law enforcement services, fire protection services, schools and parks through development impact/mitigation fees and increased collection of property and sales tax from new development. Additionally, some proposed developments are expected to include sites for new public facilities such as fire stations or schools. The project site would contribute through the addition of an elementary school in the University Village/Residential area and parkland/recreation areas within the Parks/Recreation area and Regional Sports Park area. With increased revenue for public services and the development of facilities within planned development, Alternatives A, B and C would not result in cumulatively considerable impacts to public services, utilities and recreation.

4.16.3.9 Hazards and Hazardous Materials

Impact 16.16: Potential Human Health Hazards Associated with Mosquito-Borne Diseases

Areas of standing water in the action area, such as drainage ditches, provide potential mosquito breeding sites. Development within eastern Sacramento County, including Alternatives A, B and C, could result in new risks of adverse health effects associated with vector-borne diseases or hazards because new water-related sources of mosquito breeding habitat would be created (such as additional drainage features and detention basins). Mosquito management guidelines have not been proposed, as required by the County; however they are recommended as Mitigation Measure 12.6. With mitigation, the contribution of Alternative A, B or C would not be cumulatively considerable.

4.16.3.10 Noise

Impact 16.17: Traffic Generated Noise

Traffic noise levels were analyzed for the “2035 baseline” scenario and “2035 with Alternatives A, B or C” scenario and are shown in **Table 4.13-3**. When considered cumulatively, the “2035 with Alternatives A, B or C” scenario would result in an increase above 1 dBA on only one road segment, Eagles Nest Road. None of the road segments result in traffic noise levels increasing by 12 or more dBA as set forth by the Federal Highway Administration’s Noise Abatement Criteria. Based on this evaluation, Alternatives A, B and C would not result in a cumulatively considerable contribution of increased noise levels on area roadways.

Impact 16.18: Airport Noise Impacts on Proposed Development

Land Use Compatibility Guidelines, provided in the Mather Airport Comprehensive Land Use Plan (CLUP) and shown in **Table 3.13-4**, are set to ensure that projects sited near the airport are appropriate for the existing level of aircraft noise. Residential uses proposed within the University Village/Residential area would be outside of the 60 Community Noise Equivalent Level (CNEL) contour and the Mather Airport Planning Policy Area (MAPPA) and would not be impacted by noise generated by airport operations.

Economic Development, Airport Commercial, Commercial Development, and Preserve areas are proposed within the 60 CNEL contour of the Mather CLUP. Table 3.13-4 shows the compatibility guidelines for various uses. Mining, quarrying, manufacturing, open space and natural areas are compatible in noise environments from 60 – 85 CNEL and retail trade is compatible in noise environments from 60 – 80 CNEL. As these uses would be compatible with the CLUP's noise policy, cumulative impacts with respect to airport noise would be less than significant.

4.16.3.11 Aesthetics

Impact 16.19: Degradation of Existing Visual Character and New Sources of Light and Glare

Construction of Alternative A, B or C with other projects proposed in the vicinity would result in changes to the visual character along Sunrise Boulevard, Kiefer Boulevard and Eagles Nest Road. Present and reasonably foreseeable development would continue the trend of conversion of open space and agricultural land to urban development, thus altering and limiting views available to motorists and residents living in the area. Increased urban development including development of Alternatives A, B and C would also lead to increased nighttime light and glare and subsequent skyglow and more limited views of the night sky in this region when compared to past and existing conditions.

Alternatives A, B and C preserve large areas of open space, and proposed developments are required to meet open space and park standards, both of which would reduce potential cumulative impacts. Mitigation in **Section 4.14** includes a landscaping plan and mitigation to reduce fugitive lighting. Other projects would be subject to similar local design and lighting ordinances which would reduce cumulative aesthetic impacts. Even with mitigation however, cumulatively significant impacts are anticipated in eastern Sacramento County, due to the conversion of large tracts of previously undeveloped land to mixed-use development, primarily within the City of Rancho Cordova. Alternatives A, B and C propose development of between 1,836 acres and 2,011 acres (varies by alternative), which is primarily undeveloped with the exception of the area proposed for airport commercial uses. Development of the areas proposed for commercial development, aggregate extraction, regional sports park and university village/residential uses would result in impacts to visual resources and new sources of light and glare. When considered along with past, present and reasonably foreseeable projects, the contribution of Alternatives A, B and C to this impact would be cumulatively considerable.

4.16.4 Cumulative Analysis for Alternative D (No Permit Alternative)

It can be assumed that anticipated future activities associated with the No Permit Alternative would be consistent with existing land use plans and policies and meet the legal obligations related to environmental protection. As development on the project site under this alternative would only occur in or adjacent to previously disturbed/developed areas, the No Permit Alternative is not anticipated to have cumulative effects to the majority of environmental resource areas discussed above. However, as discussed in **Section 4.4**, since airport commercial and aggregate extraction land uses can generate GHG and other emissions, reasonable foreseeable development under the No Permit Alternative would contribute towards significant and adverse cumulative impacts to air quality.

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4.17 Required Disclosures

4.17.1 Irreversible and Irretrievable Commitment of Resources

NEPA requires that an environmental analysis include identification of "...any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented" (42 USC §4332). Such irreversible and irretrievable commitments are related to the use of nonrenewable resources and the effects that this use could have on future generations. Irreversible effects result primarily from the use or destruction of a specific resource (e.g., energy and minerals) that cannot be replaced within a reasonable time frame. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action (e.g., extinction of a threatened or endangered species or the disturbance of a cultural resource).

There are several resources, both natural and built, that would be expended in the construction and operation of Alternative A, B or C. These resources include the building materials used in construction of a large, mixed-use development; energy in the form of natural gas, petroleum products, and electricity consumed during construction and operation of housing and commercial land uses; and the human effort required to develop and construct various components of the development. These resources are considered irretrievably committed because their use for some other purpose than the alternatives considered in the EIS would be impossible or highly unlikely.

Implementation of Alternative A, B or C constitutes an irreversible and irretrievable commitment of the project site as a land resource, thereby rendering use for other purposes infeasible.

Alternatives A, B and C represent a permanent change of land use. Such decisions are considered irreversible when their implementation would affect a resource that has deteriorated to the point that renewal can occur only over a long period of time or at great expense, or because they would cause the resource to be destroyed or removed. Thus, except to the extent minimized by the designation of the proposed Preserve(s), Riparian Buffer areas, and Avoided areas, the losses resulting from Alternatives A, B and C to habitat for vernal pool species, federally-listed species associated with this habitat, and other aquatic habitat would be irreversible. While Alternative D would expend natural and build resources, there would be no USACE action. Additionally, the areas that could be developed under Alternative D lack habitat for vernal pool species and other aquatic resources.

4.17.2 Significant and Unavoidable Effects

Even with implementation of proposed mitigation, Alternatives A, B and C would result in significant and unavoidable impacts related to the following:

- Effects from Construction Emissions with Respect to Federal General Conformity
- Effects from Operational Emissions
- City of Rancho Cordova Intersection and Roadway Performance

Even with implementation of proposed mitigation, Alternatives A, B and C would result in cumulatively considerable impacts related to the following:

- Operation Period Water Quality Degradation
- Effects to Federally Listed Vernal Pool Species and Critical Habitat
- Effects to Special-Status Species
- Effects to Wetlands and Other Waters of the U.S.
- Caltrans Intersection and Roadway Performance
- City of Rancho Cordova Intersection and Roadway Performance
- Greenhouse Gas Emissions and Global Climate Change
- Degradation of Existing Visual Character and New Sources of Light and Glare

4.17.3 Relationship between Short-Term Uses of the Environment and Maintenance and Enhancement of Long-Term Productivity

NEPA requires consideration of the relationship between short-term uses of the environment and long-term productivity associated with federal actions (42 USC §4332). This comparison is generally interpreted to recognize that a short-term (temporary) use of the environment may enable the advancement of long-term community needs. For example, construction of a school would negatively affect traffic and air quality in the short-term, but would fulfill a long-term community need to provide adequate educational facilities for its residents. A community might be willing to accept this trade-off.

4.17.3.1 Short-Term Uses

Implementation of Alternative A, B or C would result in temporary and short-term construction-related impacts. Temporary and short-term construction impacts would be associated predominantly with water quality, traffic, air quality emissions, and noise. The project proponent would implement mitigation measures identified in each resource section to reduce these impacts to a less-than-significant level wherever feasible. At the same time, however, construction of Alternative A, B or C would create economic benefits during construction, in the form of jobs and the subsequent direct and indirect demand for goods and services.

4.17.3.2 Long-Term Uses

Implementation of Alternative A, B or C would enhance the long-term economic productivity of the region, but would also result in long-term impacts related to surface water quality degradation, increased air quality emissions, increased traffic, the loss of habitat for vernal pool species and other special status species; loss of aquatic resources; and a change to the existing visual character. Therefore, while the provision of jobs and housing would fulfill a long-term community need, the negative impacts to the environment would also be long-term.

CHAPTER 5.0

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- U.S. Army Corps of Engineers (USACE), ES-1, ES-2, ES-3, 1-1, 1-4, 1-6, 1-7, 1-8, 1-9, 1-10, 1-11, 1-12, 1-13, 1-14, 1-15, 2-1, 2-2, 2-9, 2-12, 2-14, 2-20, 3.3-4, 3.3-9, 3.5-27, 3.6-1, 3.6-5, 3.6-6, 3.6-7, 3.6-8, 3.7-7, 3.10-2, 4.3-4, 4.3-5, 4.3-8, 4.5-2, 4.5-5, 4.5-16, 4.5-19, 4.5-20, 4.5-27, 4.6-1, 4.6-5, 4.6-6, 4.6-12, 4.7-2, 4.16-7, 4.16-19, 4.16-20, 4.17-1
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- Vernal pool tadpole shrimp (*Lepidurus packardii*), ES-2, 1-8, 2-6, 3.5-8, 3.5-11, 3.5-13, 3.5-16, 3.5-17, 3.5-19, 3.5-20, 3.5-22, 3.5-27, 4.5-1, 4.5-5, 4.5-8, 4.16-12
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