CHAPTER 3 – INTRODUCTION TO CHAPTERS 4 THROUGH 17

The National Environmental Policy Act (NEPA) regulations and the California Environmental Quality Act (CEQA) Guidelines identify required content for Environmental Impact Statement (EIS) and Environmental Impact Report (EIR) documents (40 CFR 1502.10; CEQA Guidelines Sections 15120–15132). However, the format and organization of a NEPA or CEQA document is not mandated by these regulations and guidelines. Chapter 3 explains the format and organization of required EIS and EIR content that will be presented in Chapters 4 through 17.

Chapter 3 also provides a single location for the EIS/EIR to present terms, definitions, and concepts that will be used in the remaining EIS/EIR chapters. Chapters 4 through 17 refer to information presented in Chapter 3 to avoid duplication or repetition of the same information in each of the EIS/EIR resource impact analyses presented in Chapters 4 through 17.

Specific concepts presented in Chapter 3 include discussions of the approach taken, the information used, and general assumptions that will be made to estimate the direct, indirect, and cumulative impacts of each EIS/EIR alternative on the separate resource topics addressed in Chapters 4 through 17.

3.1 NEPA AND CEQA TERMS

As described in Chapters 1 and 2, NEPA and CEQA require analysis of potential environmental effects of proposed actions (and alternatives to those actions) before government agency approval. While many concepts are common to NEPA and CEQA, there are differences between the two in terminology, some of the required content, and certain elements of the impact analyses. Table 3-1 compares NEPA and CEQA terms that will be used in the remaining EIS/EIR chapters.

Table 3-1. Similar NEPA and CEQA Terms

NEPA Term	CEQA Term
Lead Agency	Lead Agency
Cooperating Agency	Responsible Agency Trustee Agency
Environmental Impact Statement (EIS)	Environmental Impact Report (EIR)
Notice of Intent (NOI)	Notice of Preparation (NOP)
Environmental Impact Statement (EIS)	Environmental Impact Report (EIR)
Action	Project
Purpose and Need for Action	Project Objectives
No Action Alternative	No Project Alternative
Affected Environment	Environmental Setting
Environmental Consequences	Environmental Impacts
Environmentally Preferred Alternative	Environmentally Superior Alternative
Notice of Availability (NOA)	Notice of Availability (NOA) Notice of Completion (NOC)
Record of Decision (ROD)	Findings of Fact and Statement of Overriding Considerations/Project Approval Notice of Determination (NOD)

3.2 RESOURCE TOPICS EVALUATED IN THE REMAINING CHAPTERS

Using the scoping processes discussed in Section 1.4, the lead agencies identified the following resource areas as deserving of study in this EIS/EIR. Required content and analysis for each of these resource topics will be presented together, in a single EIS/EIR chapter:

- **Chapter 4—*Land Use*** analyzes effects of each alternative on existing and planned land use conditions, consistency with applicable planning documents, and compatibility with existing and planned land uses. This chapter also includes a land use compatibility analysis of airports in the Planning Area.
- **Chapter 5—*Soils, Geology, and Mineral Resources*** analyzes effects of each alternative on geology, soils, and mineral resources within the Planning Area. Issues addressed include existing geologic and soil conditions, seismic and soils-related hazards (e.g., earthquake, landslide, erosion), accessibility of important mineral resources, and the potential for unsafe human exposure to naturally occurring asbestos.
- **Chapter 6—*Agriculture*** analyzes effects on agricultural resources and agricultural activities within the Planning Area.
- **Chapter 7—*Hydrology and Water Quality*** analyzes effects of each alternative on hydrology and water quality conditions within the Planning Area. The analysis focuses on potential short- and long-term effects of implementing each alternative on drainage, runoff, and pollutant discharges.
- **Chapter 8—*Natural Land Cover Habitat Types, and Associated Plant and Animal Communities*** analyzes effects of each alternative on land cover types, including sensitive natural communities, and the common plant and animal species that use them.
- **Chapter 9—*Special-Status Species, Including HCP Covered Species*** analyzes effects of each alternative on special-status terrestrial and aquatic species occurring in the Planning Area, including the 28 species specifically addressed in the South Sacramento Habitat Conservation Plan (SSHCP) (the SSHCP Covered Species).
- **Chapter 10—*Aquatic Resources*** analyzes effects of each alternative on wetlands and other types of aquatic resources within the Planning Area. The analysis focuses on impacts to aquatic resources that might be jurisdictional under Section 404 of the Clean Water Act (CWA 404); aquatic resources that might be jurisdictional under CWA 401 and/or state of California regulations; and aquatic resources (including riparian areas, lakes, or streambeds) that are jurisdictional or might be jurisdictional under section 1600 of the California Fish and Game Code.
- **Chapter 11—*Paleontological, Cultural, and Historical Resources*** analyzes effects of the alternatives on paleontological, cultural, and historical resources within the Planning Area. For this EIS/EIR, cultural resources include tribal resources.

- **Chapter 12—*Public Services and Facilities*** analyzes effects of each alternative on public services and facilities within the Planning Area. Services and facilities assessed include fire protection, law enforcement, water supply, wastewater treatment, solid waste (landfill capacity), parks and recreation, energy services (natural gas and electricity), and mosquito abatement.
- **Chapter 13—*Traffic and Circulation*** analyzes effects of each alternative on traffic and circulation within the Planning Area. The analysis focuses on impacts to transportation systems that support the movement of goods and people. These systems include roads and freeways that support motorized vehicles; railways; public transit; and non-motorized travel, including bicycles and pedestrians.
- **Chapter 14—*Air Quality*** analyzes effects of each alternative on air quality within the Planning Area. General topics addressed include existing air quality conditions and construction and operational air emissions. Air quality impacts are evaluated for emissions of criteria air pollutants, fugitive dust, toxic air contaminants, and odors.
- **Chapter 15—*Greenhouse Gases and Climate Change*** analyzes effects of each alternative on global climate change, as well as impacts of global climate change on each alternative.
- **Chapter 16—*Population and Housing, Socioeconomics, and Environmental Justice*** analyzes effects of each alternative on population and housing, socioeconomics, and environmental justice within the Planning Area. Included in this chapter is the regulatory setting for population and housing, socioeconomics, and environmental justice, which identifies the laws and policies that govern the decision-making processes of relevant federal, state, and local agencies with a role in implementing the alternatives. This chapter provides an overview of social and economic conditions, demographics, and the characteristics of minority and low-income populations in the Planning Area that are relevant for analysis of environmental justice effects.
- **Chapter 17—*Other Required Analysis for CEQA and NEPA*** identifies significant effects that cannot be avoided, potentially significant effects that could be avoided, and effects found not to be significant; discusses the relationship between short-term uses of the environment and enhancement of long-term productivity; identifies irreversible and irretrievable commitments of resources, as well as significant irreversible environmental changes; discusses growth inducement and related effects; and discusses compliance with relevant executive orders. In addition, the list of EIS/EIR preparers that is required by NEPA regulation and the CEQA Guidelines is presented as EIS/EIR Chapter 18.

Although aesthetic resources and noise are included on the CEQA Guidelines Appendix G Environmental Checklist Form, these issues were not identified during the EIS/EIR internal scoping or the public scoping processes (see Section 1.4) as significant environmental issues deserving of study (40 CFR 1500.4(g)). In addition, the effects of the two EIS/EIR action

alternatives described in Sections 2.3 and 2.4 on aesthetic resources and on noise are anticipated to be essentially the same as anticipated future changes in aesthetics and noise that would occur under the No Action condition (i.e., the future conditions in south Sacramento County if an HCP is not permitted or implemented). Therefore, relative to the expected No Action future conditions, the EIS/EIR action alternatives would not have an effect on future noise or future aesthetic resources (see Initial Study Checklist in Appendix F). Therefore, to help narrow the scope of this EIS/EIR and concentrate on the issues that are truly significant to the decisions in question (pursuant to 40 CFR 15001.1, 40 CFR 1501.1(d), 40 CFR 1501.7(a)(3), and CEQA Guidelines Section 15063(c)(3)), noise and aesthetic resources are not studied further in this EIS/EIR.

3.3 FORMAT AND CONTENT OF CHAPTERS 4 THROUGH 16

Some of the EIS content required by NEPA regulation 40 CFR 1502.10 and some EIR content required by CEQA Guidelines Sections 15120–15132 were presented in EIS/EIR Chapter 1, including a description of the project location, the purpose and need for action and a statement of project objectives, and identification of the decision(s) to be made.

Required descriptions of the alternatives analyzed, including descriptions of the No Action/No Project Alternative and the Proposed Action/Proposed Project Alternative, were presented in EIS/EIR Chapter 2. Chapter 2 also provided brief discussions of the alternatives that were eliminated from detailed study and the reasons for their elimination. NEPA regulations and the CEQA guidelines also require EISs and EIRs to describe the existing environmental conditions present in the vicinity of the proposed project and the alternatives (i.e., the Affected Environment/Environmental Setting), and also require EISs and EIRs to describe and analyze the environmental impacts of the proposed project and each alternative (i.e., the Environmental Consequences/Environmental Impacts). The SSHCP EIS/EIR organizes that content by resource topic as listed in Section 3.2. In this manner, the existing conditions of an environmental resource as well as the potential impacts on that environmental resource will be presented together in one EIS/EIR chapter.

The resource-topic chapters (Chapters 4 through 16) are organized into two primary sections: the Affected Environment/Environmental Setting section and the Environmental Consequences/Environmental Impacts section:

- **Affected Environment/Environmental Setting**
    - ***Regulatory Framework***
    - ***Existing Conditions***

- **Environmental Consequences/Environmental Impacts**
    - ***Methodology for Assessing Impacts of Each Alternative*** on the chapter's resource topic
        - Study Area (if different than the Planning Area)
        - Impact Methodology
        - Significance Criteria and Thresholds of Significance
    - ***No Action/No Project Alternative***
        - Direct and Indirect Effects of the Alternative
        - Cumulative Effects Analysis of the No Action/No Project Alternative
    - ***Proposed Action/Proposed Project Alternative***
        - Direct and Indirect Effects of the Proposed Action/Proposed Project
        - Significance of Direct and Indirect Effects
        - Cumulative Effects of the Proposed Action/Project Alternative
    - ***Reduced Permit Term Alternative***
        - Direct and Indirect Effects of the Alternative
        - Significance of Direct and Indirect Effects
        - Cumulative Effects of the Reduced Permit Term Alternative

3.4 PREVIOUS PLANNING AREA ENVIRONMENTAL REVIEWS

Under certain circumstances, NEPA and CEQA regulations allow information or analysis previously presented in another document to be incorporated by reference into an EIS or EIR. If the analysis and assumptions used in the referenced document are determined by the lead agencies to be appropriate for the EIS/EIR analysis, a brief summary or description of the incorporated information or analysis will be provided, including pertinent page numbers and other relevant identifying information, pursuant to 40 CFR 1502.21, 43 CFR 46.135, and CEQA Guidelines, Section 15150(c).

The sections titled "Environmental Consequences/Environmental Impacts" in Chapters 4 through 16 may incorporate by reference certain information or analysis available from previous environmental documents. Three of these previous documents are the EIRs prepared for the Sacramento County, City of Galt, and City of Rancho Cordova General Plans, which identify policies and land use priorities to guide future development in those jurisdictions. The Sacramento County, Galt, and Rancho Cordova General Plans were updated relatively recently, and those jurisdictions overlap with the EIS/EIR Planning Area, although both the Sacramento County and the Rancho Cordova General Plans include lands that are outside the EIS/EIR Planning Area boundary. The General Plans provide a broad outline of future land use patterns within the

Planning Area. In addition, within the Galt and Rancho Cordova city limits and within Sacramento County's Urban Policy Area (UPA),[1] urban land use designations and intensities are identified.

The urban development Covered Activities that are included in the Proposed Action/Proposed Project Alternative and also included in the Reduced Permit Term Alternative (Sections 2.3 and 2.4) are consistent with future urban development patterns, infrastructure, and other elements described in the three General Plans. The planned future urban development, infrastructure, and the other elements described in the three adopted General Plans were also closely considered by the lead agencies when identifying and describing the No Action/No Project Alternative's activities, projects, and the expected future condition of the Planning Area (Section 2.2).

3.4.1 Sacramento County General Plan

The *Sacramento County General Plan of 2005–2030* (Sacramento County General Plan) (Sacramento County 2011) includes goals and policies that help ensure that future population growth in the County will have adequate housing, employment, public services, and other necessities (Sacramento County 2011, p. 12). As part of the Sacramento County General Plan, the County adopted two growth boundaries to create a logical progression of urban development—the Urban Services Boundary (USB) and the UPA. The USB indicates the ultimate boundary of the urban area in the unincorporated County, while the UPA defines the area within the USB expected to receive urban levels of public infrastructure and services within the General Plan's 25-year planning period.

Several elements of the Sacramento County General Plan were developed in a manner that anticipated the approval and implementation of an HCP in south Sacramento County (see Sacramento County 2011, Land Use Element, pp. 36, 136–137; Open Space Element, pp. 4, 17, 18; Agricultural Element, p. 9; Conservation Element, pp. 20, 35, 37, 38, 41, 45, 47, 57, 68).

The Sacramento County General Plan Land Use Element policies give priority to residential development on vacant or underutilized sites within existing urban areas that have infrastructure available, support completion of existing planned communities located within the current UPA, and support infill development within the UPA (Policies LU-4 through LU-11). The Land Use Element also contains policies allowing urban development within new growth areas that are contiguous to but outside the existing UPA (Policy LU-3). New growth areas outside the existing UPA can only be developed if the County first approves a specific plan, a comprehensive plan, or other master plan for the new growth areas (Sacramento County 2011,

[1] The Urban Policy Area (UPA) defines the area expected to receive urban levels of public infrastructure and services within the planning horizon by providing the geographic basis for the provision of urban services and infrastructure to the unincorporated County (Sacramento County 2011b).

Land Use Element, p. 35). The Sacramento County General Plan also introduced a new process by which the County would consider requests to expand the UPA; it requires any UPA expansion to meet a series of "smart growth" performance criteria (Sacramento County 2011, Land Use Element Policies LU-119 and LU-120). Although all of the land located between the current UPA boundary and the USB boundary is expected to be developed in the future, the current Sacramento County General Plan does not assign specific land use designations or development density targets to this area.

The *Final Environmental Impact Report: Sacramento County General Plan Update* (Sacramento County General Plan EIR) (Sacramento County 2010) analyzed the effects of population growth and urban development that could occur under the General Plan over 25 years. The EIR considered several different alternatives, which included (or excluded) various potential new growth areas for urban development. Ultimately, the County adopted a General Plan that did not include any new growth areas, but instead included policies directing how such areas could be developed following a master planning process; the adopted General Plan most closely resembled the Mixed Use Alternative analyzed in the General Plan EIR. One of the other EIR alternatives, the original staff proposal, included new growth areas within the SSHCP's Urban Development Area (UDA). The inclusion of these new growth areas, primarily within the Jackson Highway corridor (see also Section 3.7.2 regarding proposed future development within the Jackson Highway Corridor), makes this original staff proposal alternative more closely resemble the development scenario assumed by the SSHCP than does the adopted alternative. For this reason, this EIS/EIR utilizes the General Plan EIR analyses associated with the original staff proposal rather than the analyses associated with the Mixed Use Alternative when citing the Sacramento County General Plan EIR. However, the analysis in the General Plan EIR included nearly 300,000 additional acres of Sacramento County that are not included in the SSHCP EIS/EIR Planning Area. Therefore, the significance conclusions presented in the Sacramento County General Plan EIR include impacts from development outside the EIS/EIR Planning Area.

3.4.2 Galt General Plan

The *2030 Galt General Plan: Policy Document* (Galt General Plan) (Galt 2009a) contains statements of goals, policies, standards, implementation programs, and quantified objectives that constitute the formal policy of Galt about future land use, development, and environmental quality in Galt and its sphere of influence (SOI) through the year 2030. The Galt General Plan covers an area beyond its current SOI to an area north of Twin Cities Road, which the Galt expects would be annexed to it if needed for development.

The *Final Environmental Impact Report for the 2030 Galt General Plan* (Galt General Plan EIR) (Galt 2009b) analyzed the effects of expected population growth and urban development under the Galt General Plan over 20 years to the year 2030. The Galt General Plan EIR assumed full

buildout[2] within the existing City boundaries (Figure 1-1) by 2030, and assumed that locations of future development would conform to the "Preferred Land Use Diagram" included in the General Plan (Galt 2009b, p. LU-5). The EIR also assumed that a proposed SOI expansion would be approved by the Sacramento Local Agency Formation Commission.

The proposed Galt SOI is within the SSHCP EIS/EIR Planning Area and is part of the UDA,[3] as shown on Figure 1-1.

3.4.3 Rancho Cordova General Plan

The *City of Rancho Cordova General Plan* (Rancho Cordova General Plan) (Rancho Cordova 2006a) is the only general plan adopted by Rancho Cordova since Rancho Cordova was incorporated as a new city in 2003. The Rancho Cordova General Plan provides policies to plan for new urban growth over a 20-year period ending in 2030. Similar to the Sacramento County General Plan, the Rancho Cordova General Plan includes a land use map and multiple "elements," each of which includes goals and policies that guide future development, infrastructure, and conservation (Rancho Cordova 2006a). The Rancho Cordova General Plan provides projections for development by 2030, and full buildout of the development allowed by the General Plan within Rancho Cordova and its approved SOI by the year 2050.

The *City of Rancho Cordova General Plan Final Environmental Impact Report* (Rancho Cordova General Plan EIR) (Rancho Cordova 2006b) evaluated effects of the new urban development planned in the City of Rancho Cordova between the year 2006 and 2030, including development of the City's approved SOI. In addition, the Rancho Cordova General Plan EIR also evaluated full buildout of the Rancho Cordova city boundary and full buildout of Rancho Cordova's approved SOI, but did not identify a year when that full buildout would occur.

The study area for the Rancho Cordova General Plan EIR included areas outside the EIS/EIR Planning Area, including the portion of the City north of Highway 50 and the land owned by Aerojet northeast of the Planning Area (see EIS/EIR Planning Area discussion in Section 1.1.1). Therefore, the significance conclusions presented in the Rancho Cordova General Plan EIR include impacts from development outside the EIS/EIR Planning Area.

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2 "Full Buildout" means all currently undeveloped lands that are zoned for or are ultimately planned/contemplated for future urban development (in the adopted General Plans of the Permit Applicants) would become developed. Full buildout will include some open space and conservation lands within the areas planned for urban development.

3 As discussed in Section1.1.1, the UDA is an area that includes the portion of the Sacramento County Urban Services Boundary (USB) that is located within the EIS/EIR Planning Area, the portion of the incorporated City of Rancho Cordova that is located within the EIS/EIR Planning Area, and all the City of Galt and Galt's Sphere of Influence (SOI) (see Figure 1-1).

3.4.4 Sacramento Area Council of Governments Metropolitan Transportation Plan and Sustainable Communities Strategy

The Sacramento Area Council of Governments (SACOG) Metropolitan Transportation Plan (MTP) is a 20-year regional plan for transportation projects, such as bikeway, road, sidewalk, and transit projects in the six-county region of Sacramento, Yuba, Sutter, Yolo, Placer, and El Dorado Counties. Any transportation projects in the six-county region using federal and state funding must be included in the MTP. Since the adoption of Senate Bill 375 in 2008, each Metropolitan Planning Organization, including SACOG, is also required to include a Sustainable Communities Strategy (SCS) as part of its regional transportation plan. The SCS must demonstrate how development patterns and transportation network, policies, and programs can work together to achieve greenhouse gas emission reduction targets set by the California Air Resources Board for cars and light trucks, if there is a feasible way to do so. The SACOG MTP/SCS was adopted on February 18, 2016 (SACOG 2016a).

The *Final Environmental Impact Report for the 2016 Metropolitan Transportation Plan/Sustainable Communities Strategy* (MTP/SCS EIR) (SACOG 2016b) evaluated effects associated with implementation of the MTP/SCS over a 6,036-square-mile plan area. The study area for the MTP/SCS EIR includes the six-county region described above, and the analysis and conclusions reached by the MTP/SCS EIR are based on development and population growth across a much larger area than the EIS/EIR Planning Area.

3.4.5 Capital Southeast Connector

The Capital Southeast Connector is a proposed 35-mile multimodal transportation roadway extending from Interstate 5, south of Elk Grove, northeast through the UDA, to U.S. Highway 50 in El Dorado County. The Capital Southeast Connector will link existing communities in Sacramento and El Dorado Counties, including Elk Grove, Rancho Cordova, Folsom, and El Dorado Hills. Much of the project footprint of the Capital Southeast Connector (26.5 miles) is within the Planning Area.

Generally, the Capital Southeast Connector includes the following project segments:

- A four-lane expressway segment from the Interstate 5/Hood-Franklin Road Interchange easterly along an extension of Kammerer Road to the existing Kammerer Road/ Bruceville Road intersection
- A four- to six-lane thoroughfare segment east of the Kammerer Road/Bruceville Road intersection along Kammerer Road, and then northeast on Grant Line Road to its intersection with Bond Road (note: this road segment is within the UDA)

- A four-lane limited access rural thoroughfare along Grant Line Road from the intersection of Bond Road, northeasterly to the intersection of Calvine Road (note: this road segment is within the UDA)
- A four- to six-lane expressway segment on Grant Line Road from its intersection with Calvine Road, northeasterly to the intersection of White Rock Road, and then on White Rock Road from its intersection with Grant Line Road easterly to the Sacramento County–El Dorado County Line
- A four- to six-lane thoroughfare segment on White Rock Road from the Sacramento County–El Dorado County line northeasterly to the intersection with the U.S. Highway 50 interchange at Silva Valley Parkway (note: this segment and interchange are outside of the Planning Area, so are not SSHCP Covered Activities and are not covered by the SSHCP permits).

The construction and future operation of the 26.5-mile portion of the Capital Southeast Connector located within the Planning Area is a Covered Activity of the two EIS/EIR action alternatives (see Sections 2.3 and 2.4).

The *Capital Southeast Connector Project Final Program Environmental Impact Report* (Connector EIR) (Connector JPA 2012) analyzed effects associated with the selection of a maximum 1,000-foot-wide general alignment along the 35-mile corridor between Interstate 5 in Elk Grove and U.S. Highway 50 in El Dorado County. Project design guidelines were included as assumptions to help define the general scope of the project and estimate potential impacts of the project in the Program EIR, but the document was not intended to provide environmental clearance for full project design, and subsequent project-level analyses will be completed in the future. As described previously, the study area for the Connector EIR included areas outside the EIS/EIR Planning Area; therefore, the significance conclusions presented in the Connector EIR include impacts from project development outside the EIS/EIR Planning Area.

3.5 CONTENTS OF THE AFFECTED ENVIRONMENT/ ENVIRONMENTAL SETTING SECTIONS OF CHAPTERS 4 THROUGH 16

NEPA regulations require that each EIS describe the Affected Environment, defined as the existing environment of the area to be affected by the alternatives under consideration (40 CFR 1502.15). Similarly, under CEQA, each EIR is required to describe the existing Environmental Setting and the physical environmental conditions in the vicinity of the project (from both a local and regional perspective), as it exists at the time the Notice of Preparation (NOP) is published (CEQA Guidelines, Section 15125). As discussed in Section 1.4.1, the NOP for this EIS/EIR was published in 2013.

NEPA regulations and CEQA Guidelines both require the description of the existing environmental conditions be no longer than is necessary to understand and describe the effects of the proposed action/proposed project and the alternatives.

The Affected Environment/Environmental Setting sections of Chapters 4–16 (see preliminary discussion in Section 3.3) include a description of the existing regulatory environment typical in the Planning Area for proposed projects that could affect that resource topic. The Affected Environment/Environmental Setting sections identify the Planning Area's existing laws, regulations, and local policies that apply to that resource topic. Any environmental analyses, studies, or surveys of the resource topic that would be required by the existing Regulatory Framework are explained in this section. In addition, relevant permits, licenses, and other entitlements that must be obtained to implement the alternatives are presented in this section of Chapters 4–16, as required by NEPA regulation 40 CFR 1502.25.

The Affected Environment/Environmental Setting sections also describes the existing physical environmental conditions of that resource within the EIS/EIR Planning Area, and existing conditions within the EIS/EIR study area of that resource topic, if the study area of the resource topic is larger than the EIS/EIR Planning Area (see study area discussion in Section 3.6.2).

3.6 CONTENTS OF ENVIRONMENTAL CONSEQUENCES/ ENVIRONMENTAL IMPACT SECTIONS IN CHAPTERS 4 THROUGH 16

As outlined in Section 3.3, the potential environmental impacts of implementing the No Action/No Project Alternative, the Proposed Action/Proposed Project Alternative, and the Reduced Permit Term Alternative are presented in separate subsections of each resource-topic chapter (Chapters 4 through 16).

In Chapters 4 through 16, the level of detail used when describing environmental impacts for each resource-topic varies in proportion to their significance, meaning that severe impacts are described in more detail than less consequential impacts, as required by 40 CFR 1502.2(b) and by CEQA Guidelines, Section 15126.2(a). This is intended to help decision makers and the public focus on each alternative's key effects. CEQA requires that an EIR be prepared with a sufficient degree of analysis to provide decision makers with information that enables them to make a decision that intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project under CEQA need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible (CEQA Guidelines, Section 15151).

The analysis of the proposed action and each alternative must include an analysis of the direct, indirect, and cumulative effects of the proposed action or alternative, as well as analysis of the effects of any appropriate mitigation measures and best management practices (43 CFR 46.130a). Under NEPA regulations, those mitigation measures and best management practices can be analyzed either as elements of the alternatives or in a separate discussion of mitigation (43 CFR 46.130a). Because mitigation, conservation, minimization, and avoidance measures are key components of the SSHCP, each of the Environmental Consequences/Environmental Impact sections of Chapters 4–16 concurrently analyze both the adverse impacts of the alternative and the beneficial impacts of the mitigation, conservation, minimization, and avoidance measures that are also included in the description of the alternative (see Section 2.2, 2.3, and 2.4). Under CEQA, an EIR is required to distinguish between the measures that are proposed by project proponents to be included in the project and other mitigation measures that the lead agency determines could reasonably be expected to reduce significant adverse impacts; the EIR is required to identify mitigation measures for each significant environmental effect identified (CEQA Guidelines, Section 15126.4).

Therefore, this EIS/EIR will recommend additional mitigation measures, as appropriate, when an impact determination finds that a significantly adverse effect would result from an action alternative (see additional discussion of impact significance in Section 3.8).

3.6.1 EIS/EIR Environmental Baseline

Under NEPA, the impacts of the proposed action and each alternative are usually discussed and evaluated in comparison to the expected future conditions that would occur without an action/project (CEQ 1981, Question #3; 43 CFR 46.4.15[b][1]). The future conditions without the action/project are the same future environmental conditions described for the No Action Alternative. Therefore, the expected future condition for each of the resource areas studied in this EIS/EIR (see Section 3.2) is described in the No Action/No Project Alternative sections of Chapters 4–16 (see Section 3.3). As indicated in those sections, the expected No Action/No Project's future conditions are always described and discussed relative to the existing conditions of that resource topic.

Under CEQA, the impacts of the proposed project and each alternative are usually described relative to the existing environmental conditions at the time the NOP is issued (CEQA Guidelines, Section 15125(a)). The existing environmental condition of the resources in the Planning Area at the time of NOP issuance are presented in the Affected Environment/ Environmental Setting sections of Chapters 4–16.

However, under both NEPA regulations and the CEQA Guidelines, lead agencies have discretion in some situations to use a different baseline for describing and assessing environmental effects

of a proposed project and alternatives. As discussed previously, the CEQA baseline for describing impacts and assessing significance of project impacts is normally the environmental setting (the existing conditions) at the time an NOP is issued (CEQA Guidelines, Section 15125[a]). However, CEQA case law has clarified that in some situations, this typical approach may not be appropriate. In the 2013 California Supreme Court decision, *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority*, the court clarified that lead agencies preparing EIRs have the discretion to use a future-condition baseline when a comparison to the existing conditions would be misleading or uninformative. That court decision noted the following points: (1) that a CEQA analysis needs to "employ a realistic baseline that will give the public and decision makers the most accurate picture practically possible of the project's likely impacts;" (2) "CEQA imposes no 'uniform, inflexible rule for determination of the existing conditions baseline,' instead leaving to a sound exercise of agency discretion the exact method of measuring the existing environmental conditions upon which the project will operate;" and (3) a lead agency may "omit an analysis of impacts on existing conditions when inclusion of such an analysis would detract from an EIR's effectiveness as an informational document, either because an analysis based on existing conditions would be uninformative or because it would be misleading to decision makers and the public" (*Neighbors for Smart Rail v. Exposition Metro Authority* [2013] 57 Cal.4th 439, 507). Also, the court indicated that "nothing in CEQA law precludes an agency from considering both types of baseline—existing and future conditions—in its primary analysis of the project's significant adverse effects."

For this EIS/EIR, the lead agencies determined that using the existing condition as the baseline to describe and determine the significance of each action alternative's expected impacts would be misleading. This determination was made because the two action alternatives include, as Covered Activities, future urban development and infrastructure projects that are also reasonably expected to occur under the No Action/No Project Alternative. Although the details of this future development are not completely known at this time, it is anticipated that new urban development under all of the EIS/EIR alternatives would accommodate the same population and development growth, and that this urban growth would occur in areas where public infrastructure and services are planned for the 50-year EIS/EIR study period (i.e., within the spheres of influence for the Cities of Galt and Rancho Cordova and within Sacramento County's USB). As a result, the types of new urban development and associated infrastructure would be the same, and the general locations and the acres of new urban development would be very similar for all alternatives. Therefore, using existing conditions as the baseline for describing the effects of each action alternative and for determining the significance of those effects would misrepresent the impacts of the action alternative because that development would occur whether or not an HCP is approved and implemented in south Sacramento County.

Further, the future urban development and infrastructure Covered Activity projects and activities are not part of the "project" under CEQA that is subject to approval by the CEQA lead agency and by the other HCP Permit Applicants (see Section 1.5), are not part of the "project" under CEQA that would be subject to permitting by the California Department of Fish and Wildlife (CDFW) (see Section 1.5), and are not part of the "action" under NEPA that would be subject to permitting by the U.S. Fish and Wildlife Service (USFWS) (see Section 1.5). The EIS/EIR "project" (under CEQA) and "action" (under NEPA) consists of the approval and implementation of the HCP, SSHCP Aquatic Resources Plan (ARP), and issuance of associated take permits, but not the actual construction of or the discretionary entitlements of urban development projects and activities. Thus, the future environmental impacts of new urban development in the Planning Area would not result from the decisions to be made about the Proposed Action/Proposed Project (Section 1.5). For these reasons, the EIS/EIR basis of comparison (the EIS/EIR baseline) for describing the environmental impacts of each action alternative is the future condition of the Planning Area expected to occur under the No Action/No Project Alternative.

3.6.2 Geographic Study Area of Resource Topics Analyzed in Chapters 4 through 16

For most of the resource topics analyzed in Chapters 4–16, the geographic study area for direct, indirect, and cumulative effects of each alternative is the same as the Planning Area boundary (see Section 1.1.1). However, for some resource areas, the study area is larger than the Planning Area because the effects of the Proposed Action/Proposed Project would act synergistically with impacts in the larger area to affect the resource. For example, for EIS/EIR Chapter 14, Air Quality, the impact study area for that resource topic consists of the Sacramento Valley Air Basin because emissions generated in the Planning Area are distributed throughout that air basin. In Chapter 8, Natural Land Cover Habitat Types, and Associated Plant and Animal Communities, the study area for impacts to the vernal-pool land cover and the vernal-pool ecosystem considers cumulative impacts to those aquatic resources within the boundary of the Southeastern Sacramento Valley Vernal Pool Region (Keeler-Wolf et al. 1998; USFWS 2005), which extend beyond the EIS/EIR Planning Area to include other portions of Sacramento County, and portions of Placer, Yuba, San Joaquin, Calaveras, Amador, and Eldorado Counties. For Chapter 9, Special-Status Species, Including HCP Covered Species, the study area for cumulative impacts varies depending on the species because some species have very limited ranges, while others have extensive ranges.

When the study area for a resource topic is different from the Planning Area boundary, the section titled "Methodology for Assessing Impacts of Each Alternative" (see Section 3.3) defines the study area and provides a reasonable explanation for the geographic area used in the cumulative analysis (CEQA Guidelines, Section 15120 [b][3]).

3.6.3 EIS/EIR Study Period

The Proposed Action/Proposed Project requests a 50-year Incidental Take Permit (ITP) permit term (see Section 2.4.1). During the proposed 50-year permit term, all Covered Activities would be constructed, the entire SSHCP Preserve System would be established, and the other parts of the proposed Conservation Strategy would be completed. Therefore, a 50-year EIS/EIR study period is reasonable for the Proposed Action/Proposed Project because that period will cover the amount of time anticipated by the Permit Applicants for full build-out of the UDA to occur, and the amount of time anticipated for assembly of the interconnected SSHCP Preserve System and implementation of the proposed SSHCP Conservation Strategy.

To allow for a coequal analysis of all EIS/EIR alternatives, as required by NEPA regulation (40 CFR 1502.14), the EIS/EIR also uses the same 50-year analysis study period to evaluate the No Action/No Project Alternative and to evaluate the Reduced Permit Term Alternative.

3.6.4 Addressing Incomplete or Unavailable Information in Chapters 4 through 16

CEQA recognizes that drafting an EIR necessarily involves some degree of forecasting. While foreseeing the unforeseeable is not possible, an agency must use its best efforts to determine and disclose all that it reasonably can (CEQA Guidelines, Section 15144). The courts have looked not for perfection but for adequacy, completeness, and a good-faith effort at full disclosure (CEQA Guidelines, Section 15151).

Likewise, NEPA regulations direct that when a lead agency is evaluating a reasonably foreseeable effect in an EIS and there is incomplete or unavailable information, the EIS shall always be clear that such information is lacking (40 CFR 1502.22). Further, if information relevant to a reasonably foreseeable adverse impact cannot be obtained because the means to obtain it are not known, or the costs of obtaining the information are exorbitant, the EIS shall: (1) state that such information is incomplete or is unavailable; (2) state why the missing information is relevant to evaluating the foreseeable adverse impact; (3) summarize the existing information and credible scientific evidence which is relevant to evaluating the reasonably foreseeable adverse impact; and (4) the lead agency's evaluation of the foreseeable adverse impact with incomplete or unavailable information shall be based upon theoretical approaches or methods that are generally accepted in the scientific community (40 CFR 1502.22(b)).

The description of the three EIS/EIR alternatives in Chapter 2, including the types, amounts, locations, and timing of future development forecasted in the Planning Area under each alternative, was based on information obtained from three primary sources: (1) the adopted

General Plans (see Section 3.4); (2) the Master Plan development applications currently being processed by the local land use authorities (see Section 2.2.1 and Table 2-3), and (3) the professional judgment of the planning departments of Sacramento County, Galt, and Rancho Cordova. These sources of information provide the best available information about the types, amounts, locations, and timing of future development expected in the Planning Area under each of the three EIS/EIR alternatives, and they provide the foundation for the impact analysis of each EIS/EIR alternative presented in Chapters 4 through 16.

However, information about the precise amounts, specific locations, and actual timing of future development projects under each EIS/EIR alternative over the 50-year EIS/EIR study period is incomplete. Furthermore, current forecasts of Planning Area economic conditions, population trends, and other factors that stimulate and drive urban development have some uncertainty, so the future population growth and economic conditions over the next 50 years may be different from the current predictions. In addition, as discussed in Section 2.2.2 for the No Action/No Project Alternative, there is also some uncertainty about future regulatory requirements for new development projects within parts of the UDA and how those requirements may affect species habitat and aquatic resource avoidance, minimization, and preservation over the next 50 years.

The EIS/EIR identifies where specific information about the future conditions of an EIS/EIR alternative is incomplete or unavailable at this time. The EIS/EIR then explains how any incomplete or unavailable information was addressed by the lead agencies to forecast the likely future conditions under an EIS/EIR alternative and to determine the environmental impacts of each EIS/EIR alternative.

3.6.5 GIS Methodology Used in Chapters 4 through 16 to Estimate Direct Impacts of Each EIS/EIR Alternative

Direct impacts are effects caused by the action or project and occur at the same time and place as the action or project (40 CFR 1508.8; CEQA Guideline, Section15358). Direct impacts are also discussed as primary impacts under CEQA.

Chapters 4–16 estimate the permanent direct effects of each EIS/EIR alternative using geographical information system (GIS) technology. GIS is a computer and software system designed to collect, store, manage, present, analyze, and manipulate spatial or geographically referenced data (i.e., information or data identified by its location). GIS spatial data represents locations of real objects (such as roads, land use, elevation, vegetation, and waterways) as points, lines, and polygons.

The majority of natural-resource spatial data used by the SSHCP EIS/EIR came from aerial photographs of the Planning Area that were digitized or scanned by the Permit Applicants to

produce digital data sets. Existing spatial data from other sources was also used, including spatial data from the CDFW Natural Diversity Database to locate species survey data and known species occurrences within the Planning Area, maps of streams and creeks from the National Hydrological Dataset, state maps of important farmland, and other publicly available geographic datasets. GIS can be used to combine several spatial datasets to create a new output vector dataset (or new map overlay), which is visually similar to stacking several paper maps of the same area. The new map overlay can be similar to a mathematical Venn diagram of overlays for the same area—for example, a union overlay combines geographic features into a single new output; an intersect overlay defines the area where inputs overlap, and a symmetric difference overlay defines an output that includes the total of both inputs, except for the overlapping areas.

The impact analysis in this EIS/EIR included use of GIS digital map overlays of the planned new urban development and infrastructure footprints expected under the each alternative. The GIS map overlay of urban development projects and activities expected under each EIS/EIR alternative (described in Sections 2.2, 2.3, and 2.4) includes UDA Master Plan development projects and infrastructure projects that are currently in the planning process (see Table 2-9), and the other anticipated urban development and infrastructure discussed in the adopted General Plans (see Section 3.4), including the road and utility infrastructure projects that are planned by Capital Southeast Connector JPA and the Sacramento Regional County Sanitation District.

The EIS/EIR then used GIS technology to compare the spatial data overlay of planned urban development for each EIS/EIR alternative to the spatial data overlays of existing resources for this Planning Area.

Where the GIS comparison of the map overlays showed an intersection or overlap between the alternative's planned-development footprint and an existing environmental resource, the Environmental Consequences/Environmental Impact analysis assumes that the environmental resources present within the area of overlap would be removed, and new urban development would occur in that area. GIS was used to quantify these acres of overlap, and the Environmental Consequences/Environmental Impact analysis analyzed those acres of existing land cover or natural resource as permanently impacted and removed (lost).

The GIS software can make precise calculations. However, the map overlay of the new urban development expected under each alternative included many assumptions about the specific locations, types, timing, quantity, and total area of future urban development and associated infrastructure. As discussed in Section 3.6.4, the assumptions made by the lead agencies to develop the data overlay of each EIS/EIR alternative were based on information from the General Plans described in Section 3.4, on information in the Master Plan development applications currently being processed by the local land use authorities, and on the professional judgment of the planning departments of Sacramento County, Galt, and Rancho Cordova. As

further discussed in Section 3.6.7, these sources of information provide the best available information about the types, amounts, locations, and timing of future urban development in the Planning Area. Use of the best available scientific and commercial information during the preparation of the EIS/EIR is discussed in Section 3.6.7.

3.6.6 Methodology Used in Chapters 4–16 to Estimate Indirect Impacts of EIS/EIR Alternatives

NEPA defines indirect impacts as effects of the action that occur later in time, or are farther removed in distance, but are still reasonably foreseeable (40 CFR 1508.8). Similarly, CEQA describes indirect effects as those that are caused by a project but occur later in time or at some distance from the project site, but are still reasonably foreseeable. Indirect impacts are also referred to as secondary effects under CEQA (CEQA Guidelines, Section 15064[d]). CEQA further states that "An indirect physical change in the environment is a physical change in the environment which is not immediately related to the project, but which is caused indirectly by the project. If a direct physical change in the environment in turn causes another change in the environment, then the other change is an indirect change in the environment" (CEQA Guidelines, Section 15064 [d][2]).

New urban development and associated new infrastructure are known to produce environmental stressors that can permanently impact existing environmental resources over time and/or can permanently impact environmental resources that are located outside the development project site. As discussed below, these stressors result from urban development's physical changes to existing landscapes and watersheds, removal or changes to existing vegetation, the construction and long-term maintenance of buildings and infrastructure, new or increased human activities of all types, and increased vehicle traffic.

Each EIS/EIR resource chapter (Chapters 4–16) identifies the environmental stressors of the EIS/EIR alternatives that could indirectly impact the resources analyzed in that chapter. For most resources studied in Chapters 4–16, the exact location and the exact quantity or intensity of the future indirect effects that would be caused by those environmental stressors cannot be accurately quantified at this time. Therefore, most indirect impacts of each EIS/EIR alternative are described and analyzed qualitatively in Chapters 4–16. Discussions of the duration, general locations, expected extent, and relative intensity of the indirect effects of each EIS/EIR alternative on the chapter's resource topic are included in each qualitative indirect impact analyses presented in Chapters 4–16.

However, to prepare the Endangered Species Act (ESA) incidental take permit (see Section 1.1), the USFWS must evaluate the total acres of vernal-pool species habitat within the Planning Area that would be permanently impacted, including all indirectly impacted acres. Therefore,

the Environmental Consequences/Environmental Impact sections of Chapter 8 and Chapter 9 also quantify acres of indirect impacts to three aquatic land cover types that provide aquatic habitat for vernal-pool species (i.e., vernal pool, swale, and the stream/creek land cover types). As detailed in Sections 8.2.1 and 9.2.1, the Permit Applicants used LIDAR technology to create digital maps of individual vernal pool microwatersheds from aerial photo data, and then quantified the indirect impacts of each action alternative on vernal pools, swales, and stream/creeks land covers using GIS methodology, as described in Section 3.6.4.

Known environmental stressors of new urban development could result in the following indirect impacts to existing environmental resources.

Hydrologic Alterations. As new development occurs, increased runoff from new impermeable surfaces (e.g., roads, parking lots) and from irrigated landscapes (e.g., yards, sports fields, golf courses) can occur. Urban runoff from developed areas has the potential to add water to the natural hydrologic system and can change the existing hydrographs of creeks, streams, and waterways in the project site and in the surrounding region. Constructing barriers such as berms or raised beds, which are often built to support roadways and railroad tracks, changes hydrology by blocking waterways and creating impoundments where water can collect. These kinds of impoundments can also alter and degrade downgradient waters by fragmenting the local watershed, resulting in premature drying of downstream aquatic resources and can lead to permanent loss of aquatic habitat. Urban development in a part of a watershed may alter the hydrology of the remaining aquatic resources. Long-term effects on water quality caused by runoff from new impermeable surfaces potentially include pollution from petroleum products, fertilizers, pesticides and herbicides, soil erosion, increased turbidity, and increased sedimentation. Soil erosion and chemical and toxic compound pollution (e.g., fuel, oil, lubricants, paints, release agents, and other materials) also affect water quality and aquatic habitats.

Pollution. New urban development increases the potential for point and non-point source pollutants to enter the natural landscape through both surface and subterranean water flows, through windblown trash accumulation, through windblown dispersion of chemicals, and through illegal dumping of industrial and household trash and garden waste in natural areas. Pesticides, herbicides, and fertilizers can enter adjacent landscapes through runoff from irrigated landscapes or from storm events. Contaminants from automobile traffic that collect on roadways, parking lots, and driveways, and enter natural landscapes during storm events include oil, gas, brake dust, and other automobile fluids. Roadway materials, vehicle leaks, and spills in a development also contaminate adjacent or downstream aquatic resources and aquatic and semiaquatic habitats, including riparian habitat. Illegal dumping of unwanted items such as trash, tires, and appliances in natural or open space areas directly crush vegetation and restrict photosynthesis by blocking the sun. Discarded electronics (i.e., e-waste) can introduce various toxic chemicals into the environment, including heavy metals that may leach into soil,

groundwater, and surface waterways. These waste materials may also disrupt natural hydrology by forming obstructions and blocking flows and may create habitat for pest species such as non-native rats.

New urban development and associated increased presence of humans and vehicle use also typically increases air pollution. One effect of air pollution is increased nitrogen deposition (N-deposition), which, in turn, facilitates the growth of non-native plant species and degrades existing habitats of native plant and wildlife species. Future development in the Planning Area will likely increase local sources of nitrogenous air pollutants, primarily due to traffic and new demand for electricity generation.

Pesticides, fertilizers, fungicides, herbicides, and rodenticides used in developed areas may directly affect adjacent or downstream vegetation communities and habitat quality, be directly toxic to species or indirectly toxic to species through prey vectors, or reduce prey abundance. These substances may penetrate open spaces through urban runoff from residential and commercial landscape areas and golf courses, overspray, wind, direct applications in interface areas, soil penetration, and wildlife vectors. Pesticides, for example, can act in several ways—the original pesticide can be toxic, its decomposed elements can be even more toxic, and it can "bioaccumulate," whereby the contaminant concentrates further in each successive link of the food chain, thus reaching higher concentrations at higher levels of the food chain. Fertilizers, as discussed previously, can enter wetland and riparian systems and cause eutrophication (excessive nutrients in water bodies) and result in large algae blooms and can enhance growth of non-native aquatic weeds.

Increased Human Activity and Recreation. These stressors indirectly affect open spaces from increased foot, equestrian, bicycle, and off-road vehicle traffic (including unauthorized uses), and can result in trampled vegetation, compacted soils, impaired hydrology, invasive plant and animal introduction and facilitation, and increased trash and debris. Increases in human activity along the interface of open spaces and new urban development may result in trampling of vegetation and compaction of soils. Trampling of vegetation and compaction of soils can decrease the rate of rainfall interception and evapotranspiration, soil moisture, water penetration pathways, surface flows, and erosion. Recreational off-road vehicle use in particular, especially during the wet season, can create large ruts in natural land covers, damage soil profiles, reduce native vegetative cover, and promote invasion by non-native plants. Off-leash pets may harass and kill wildlife and introduce disease and parasites (e.g., from fecal material). Human and pet presence or activity can alter wildlife behavior and can cause wildlife to permanently avoid suitable habitat areas or abandon occupied nesting/breeding sites. Accidental and intentional wildfire ignitions may also increase from human recreation.

Altered Fire Regimes. Urbanization and changed land uses (e.g., changes in grazing patterns of an open space) can alter natural wildfire regimes by increasing the frequency and intensity of fires, but also change tactical approaches for fighting wildfires. In most cases, wildfires in new urban development are quickly suppressed for public safety and to protect property, but in some cases, wildfires become uncontrollable and catastrophic, in part because past wildfire suppression in increasingly urbanized areas has resulted in much greater fuel loads in open space areas than occurred under pre-development conditions. Altered wildfire regimes, and particularly increased incidence of fires in urbanizing areas, are a result of human activities at the open space–urban interface, including accidental ignitions from sparks from equipment (e.g., mowers striking rocks), cigarettes, children playing with matches, and intentional arson ignitions. However, wildfires may also be ignited by downed or arcing from new power lines, or from cars starting fires along new roadsides.

Traffic and Vehicle Collisions. New roadways and increased capacity of improved roadways can increase the risk of vehicle collisions where wildlife use or attempt to cross roadways, impact current traffic patterns, increase emissions, and affect air quality of the surrounding region.

Invasive Plants and Animals. New development, including new roadways, new utility corridors, and other infrastructure, can increase numbers and promote movement and dispersal of invasive, non-native plant and wildlife species, ultimately changing ecological functions in open spaces and reducing numbers and diversity of native species. As development and infrastructure encroach into natural landscapes, newly disturbed areas and/or the interface between developed areas and native habitats provide an opportunity for invasive plant species to establish and eventually invade natural habitat settings, degrading habitat and potentially expatriating native plant species. Increases in non-native invasive plant species can alter ecosystem processes, such as nutrient cycling, hydrologic cycles, frequencies of wildfires, and erosion and sediment deposition. Invasive plants further interfere in ecosystem functions by outcompeting and displacing native plants and wildlife, providing refuge for non-native animals, and hybridizing with native species.

Mesopredators. An indirect consequence of habitat fragmentation by new development and isolation of habitat by new development is an increase in abundance of urban-adapted or urban-tolerant mesopredators, such as raccoons, skunks, opossums, and foxes (*Urocyon cinereoargenteus*, *Vulpes* spp.). Non-native mesopredators may also include free-roaming stray and feral cats and dogs, which can have the same effects as wild mesopredators. These mesopredator species can outcompete smaller native species for available resources and increase predation rates on the smaller native species, thus reducing the distribution and populations of vulnerable native species in the region.

Aboveground Utilities. New power lines, transmission towers, and utility poles can also cause collisions, entanglements, and electrocution of bats and large birds, especially raptors. Other potential indirect effects associated with operation and maintenance and repair of utility transmission lines are similar to short-term construction-related effects, including hydrologic and water quality alterations, soil erosion, chemical and toxic compounds pollution, dust, noise, vibration, lighting, increased human activity, temporary fencing, accidental clearing, trampling, grading, oak tree root effects, and trash and other debris.

Disease. The increased human and associated pet population can increase the risk of disease transmission to native wildlife. For example, free-ranging domestic cats and dogs can transmit new diseases to wild animals.

Lighting. New lighting may affect wildlife orientation/disorientation and attraction/repulsion, reproduction, and communication at the behavioral and population ecology level, and competition and predation at the community ecology level. Ecological light pollution from new development can include increased ambient light and direct glare from sky glare, lighted buildings, streetlights, and security lights would generally be chronic.

Microclimate Changes. New urban development may introduce microclimate changes at the open space–urban edge, such as alterations in wind, solar radiation and light exposure, and water. Increased wind exposure at the open space–urban interface may result in direct physical damage to natural vegetation (e.g., windpruning and/or loosening of bark) or increase evapotranspiration, reduce humidity, and increase desiccation of plants that require adequate soil moisture for regeneration. Increased wind may also increase dust levels and seed transport, potentially interfering with photosynthesis and introducing non-native species. Alterations in solar radiation and light exposure can have numerous effects on adjacent natural habitats. Daytime temperatures can be higher and nighttime temperatures lower than areas within intact natural vegetation patches, resulting in greater temperature ranges of the soil and increased chance of frost. Soil nutrient cycling, soil moisture retention, invertebrate communities, and predator/prey relations also may be affected by altered soil temperatures. Temperature alterations may also occur in aquatic habitats that exceed species' (e.g., fish, amphibians, or crustaceans) tolerances. Hydrologic alterations and related effects from new development include changes in the rates of rainfall interception and evapotranspiration; changes in soil moisture, water penetration pathways, surface flows, subsurface flows, and soil erosion; movement of salts, nutrients, and pesticides; and habitat alterations for ground-dwelling species.

Habitat Fragmentation and Isolation. New urban development often fragments existing natural lands that provide habitat for native plants and animals. Habitat fragmentation and isolation of plant and wildlife populations, including effects on wildlife movement and dispersal as well as effects on plant pollinators and seed dispersal, may cause extinction of local

populations. At the larger landscape scale, change in regional abundance and distribution of habitat may change the migration and habitat use patterns of some wildlife species, which in turn alters multiple landscape-scale ecological functions. Fragmentation also decreases the functional size of conserved habitat patches. As remaining habitat areas diminish in size, the ratio of vulnerable edge to preserved interior area increases. Increased edge effects heighten species' vulnerability to stochastic disturbances, pollution, and invasion by non-native plant and animal species.

3.6.7 Specific Assumptions Used in the Environmental Impact Analysis of Each EIS/EIR Alternative

The EIS/EIR presents information and assumptions specific to the impact analysis of individual EIS/EIR alternatives here in Chapter 3 to avoid repeating the same information in each resource topic chapter's Environmental Consequences/Environmental Impact analysis for that alternative.

3.6.7.1 Analysis of the No Action/No Project Alternative

As discussed in Section 2.2.2, the No Action/No Project Alternative assumes up to approximately 1,900 acres of new development might be displaced from the current USB and would occur within five areas outside the existing USB (Section 2.2.2). The potential impact of the development displaced to areas outside the USB was estimated based on the existing land cover types present within those five areas.

The No Action/No Project Alternative uses GIS map layers (discussed in Section 3.6.4) to determine the acres of existing land cover types present within these five areas. The No Action/No Project Alternative assumes that the 1,900 acres of new development displaced to these five areas would impact land cover types at the same proportion that those land covers currently exist in those areas. For example, if the five potential displaced development areas currently consist of 40% grassland, then the EIS/EIR analysis assumed 40% of the approximately 1,900 acres of displaced development, or 760 acres, would occur on that existing land cover type.

3.6.7.2 Analysis of the Reduced Permit Term Alternative, After the End of the Permit Term (Years 31–50)

As described in Section 2.4, the Reduced Permit Term Alternative would have a 30-year permit term for the ITPs and expedited CWA permit strategy, during which time the SSHCP would be implemented and the various Covered Activities would be constructed. However, this EIS/EIR uses a 50-year analysis study period to evaluate all alternatives (see Section 3.6.3); this study period extends beyond the end of the permit term for this alternative. Therefore, the analysis of the Reduced Permit Term Alternative also considers the period of time (Years 31–50)

following the end of the permit term. This section describes assumptions specific to this post-permit period of time for the Reduced Permit Term Alternative.

To determine the environmental impacts of the Reduced Permit Term Alternative in Chapters 4–16, the lead agencies assume that at the end of the alternative's proposed 30-year HCP permit term, the existing project-by-project CWA permit process, and the related ESA Section 7 consultation processes (described in Section 2.2.2) would resume again for any additional projects and activities implemented after the end of the 30-year permit term. As discussed in Section 2.2.2, the impact analysis for the Reduced Permit Term Alternative assumes that each new development project implemented after year 30 would again seek individual project-by-project regulatory approvals from multiple local, state, and federal agencies, and there would not be a coordinated approach to designing new preserves or a plan to connect new preserves to existing preserves.

The impact analyses for the Reduced Permit Term Alternative assumes that after the end of the alternative's 30-year permit term, additional urban development would occur inside the UDA, causing full buildout of the UDA by the end of the EIS/EIR's 50-year study period. However, development within the Mather Core Recovery Area (MCRA) portion of the UDA would be limited by the availability of vernal pool resources within the MCRA to serve as mitigation for development impacts because the regulatory environment in years 31–50 of the Reduced Permit Term Alternatives would presumably be similar to the regulatory environment described for the No Project Alternative in Sections 2.2.2 and 2.2.3.

Of the 23,500 acres of the MCRA located within the UDA, approximately 1,300 acres are already developed and approximately 4,600 acres are in existing established preserves. As discussed in Section 2.4, approximately 6,700 acres of the MCRA are expected to be impacted by new urban development during this alternative's 30-year permit term, and approximately 3,800 acres of permanent preserves established within the MCRA during this alternative's 30-year permit term. This would leave approximately 7,100 acres of the MCRA still available for potential future development at year 30.

Based on the Reduced Permit Term Alternative's assumptions for ESA and CWA regulatory requirements in the MCRA for years 31–50 (which are the same regulatory assumptions as for the No Action/No Project Alternative—see Section 2.2.2), the lead agencies estimated how much undeveloped land remaining inside the MCRA (and the rest of the UDA) at year 30 would reasonably be developed by the Reduced Permit Term Alternative in years 31–50 of the EIS/EIR 50-year study period.

Some speculation and assumptions were necessary to estimate acres of future mitigation that could be implemented under the expected MCRA regulatory environment of years 31–50 of the

Reduced Permit Term Alternative. The lead agencies made those assumptions by considering the trends in ESA and CWA mitigation that have occurred within Sacramento County since the designation of the MCRA in 2005 (USFWS 2005), and used the best available scientific information on the status of the species and aquatic resources in the MCRA and elsewhere in the UDA. The lead agencies concluded that further urban development of the MCRA in years 31–50 would be restricted primarily to areas of the MCRA where development could occur without causing direct impacts to vernal pools, largely through the use of on-site avoidance areas and/or on-site preserves.

As with the No Project Alternative (see Section 2.2.3), it is not possible to determine with accuracy a complete picture of possible future urban development and mitigation that would occur in the UDA during years 31–50 of the Reduced Permit Term Alternative. This is because of the incomplete information on individual development projects in the Planning Area over the next 50 years and uncertainty regarding economic conditions and population trends that drive urban development over such a long time. In addition, as discussed in Section 2.2.2 for the No Action/No Project Alternative, there is also uncertainty about future regulatory requirements for new urban development and future increases in avoidance, minimization, and preservation of aquatic resources and species habitats within the UDA over the next 50 years.

3.7 CUMULATIVE EFFECTS ANALYSIS IN RESOURCE CHAPTERS 4 THROUGH 16

NEPA regulations define a cumulative effect as the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7; 43 CFR 46.115). Similarly, CEQA cumulative impacts are defined as “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts” (CEQA Guidelines, Section 15355). Under CEQA, the lead agency must consider whether the cumulative impact is significant, and whether a project’s incremental effect, although individually limited, is cumulatively considerable. “Cumulatively considerable” means that the incremental effect of an individual project is significant when viewed in connection with the effects of the past projects, the effects of other current projects, and the effects of probable future projects (CEQA Guidelines, Section 15064[h][1]).

As outlined in Section 3.3, the Environmental Consequences/ Environmental Impact analysis of each EIS/EIR Alternative first presents the direct and indirect effects of the alternative on that chapter’s resource topic. Then, those incremental direct and indirect impacts are considered

together with the impact of past, present, and probable (reasonably foreseeable) "other" future projects and activities in a cumulative analysis.

Each cumulative analysis presented in Chapters 4–16 first reviews the effects of all past and present actions on the resource topic analyzed in that chapter. In most chapters, the Existing Condition description presented in the Affected Environment/Environmental Setting section of the chapter(see Section 3.3) has already provided a thorough and adequate description of the impacts of all past and current actions within the chapter's study area. Each cumulative effects analysis then discusses additional impacts that would result from the reasonably foreseeable projects and activities within the chapter's study area, including those described in Section 3.7.2. The cumulative analysis adds the incremental direct and indirect effects expected from the alternative to the aggregate effects of all past and present actions and the reasonably foreseeable future actions.

As stated in CEQA Guidelines Section 15130(b)(1), the following elements are necessary to an adequate discussion of significant cumulative impacts:

A. A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency.
B. A summary of projections contained in an adopted local, regional, or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect. Such plans may include a general plan, regional transportation plan, or plans for the reduction of greenhouse gas emissions. A summary of projections may also be contained in an adopted or certified prior environmental document for such a plan. Such projections may be supplemented with additional information. Any such document shall be referenced and made available to the public at a location specified by the lead agency.

Previously approved land use documents, including general plans, specific plans, regional transportation plans, plans for the reduction of greenhouse gas emissions, and local coastal plans, may be used in cumulative impact analysis. A pertinent discussion of cumulative impacts contained in one or more previously certified EIRs may be incorporated by reference (CEQA Guidelines, Section 15130[d]).

The analysis of cumulative impacts is evaluated at a level of detail sufficient for the lead agencies to use as a reasonable basis for decision making in selecting between the alternatives.

3.7.1 Past and Present Actions in the Planning Area

To minimize repetition of information in Chapters 4–16, this section provides a brief summary of these past and ongoing present actions that are relevant to cumulative impact analyses of the EIS/EIR alternatives.

3.7.1.1 Past and Present Agriculture and Urban Development

As described in Section 1.3.1, past development and conversion of natural lands in the Planning Area included the conversion of natural lands to farmland, the subsequent conversion of farmland to urban and rural development, and direct conversion of natural lands in to urban and rural developments.

Urban development in the Planning Area intensified in the 1940s and again between 1950 and 1960, with new growth occurring primarily near the City of Sacramento and in smaller cities such as Folsom, Galt, and Isleton. Urban development continued at a moderate rate between 1960 and 1990, resulting in an expansion of urban land use patterns and infrastructure into the southern and eastern portions of Sacramento County. Development slowed in the early 1990s, picked up again in the early 2000s, and softened or slowed considerably from 2007 to 2012. Since 2012, development activity has again intensified in the Planning Area. In total, urban development comprises approximately 54,000 acres of the Planning Area.

In the eastern portion of the Planning Area, existing agricultural activities primarily consist of ranching and grazing. Livestock grazing of native annual grassland landscapes has altered plant species composition of the grasslands, but has had little effect on the ecology of the grassland landscapes or wildlife species. Appropriately managed grazing and rangeland is compatible with the habitat needs of many species, including vernal pool species.

The central portion of the Planning Area supports more irrigated pasture relative to the eastern portion of the Planning Area, while the southwestern portion of the Planning Area supports more vineyards and croplands. In total, these farming and related activities currently comprise approximately 100,000 acres of the Planning Area (not counting non-irrigated natural grasslands that are often used for grazing).

Croplands in the Planning Area are an altered landscape that retains little of the historical (pre-European settlement) conditions. Formerly consisting of extensive open grasslands, wetlands, broad riparian systems, and oak woodlands, the conversion to cropland has removed most of the historical native communities. The development of row crops, orchards, and vineyards has reduced or eliminated habitat for many native species (especially native plant species) whose habitat requirements are not compatible with these crops.

In addition, the land disturbances associated with past farming practices have contributed to sedimentation of waterways in the Planning Area, and past and current use of fertilizers and pesticides (including rodenticides) have also have contributed to existing water quality issues, which may have directly and indirectly contributed to past aquatic species mortality.

However, while generally supporting less diversity of wildlife compared to most natural landscapes, some cropland types continue to support wildlife and can provide essential breeding, foraging, or roosting habitat for several resident and migrant wildlife species. Although farming has resulted in substantial changes to the historical landscapes in the Planning Area, some cropland provides essential habitat by native wildlife species, including giant garter snake (*Thamnophis gigas*) using agricultural ditches; western pond turtle (*Actinemys marmorata*) using agricultural ditches and canals; Swainson's hawk (*Buteo swainsoni*) foraging in hay, grain, and row crops; burrowing owl (*Athene cunicularia*) using various agricultural types that include ground squirrel (*Sciuridae*) burrows; white-tailed kite (*Elanus leucurus*) foraging in hay and grain; and tricolored blackbird (*Agelaius tricolor*) foraging in hay and grain fields.

Farming and grazing are expected to continue in and around portions of the Planning Area currently used for agriculture (Sacramento County 2011; Rancho Cordova 2006a; Galt 2009a). Farmlands are subject to continuing changes in crop types depending on various factors, including, local, national, and global economic conditions.

3.7.1.2 Past and Present Infrastructure Development and Operation

The agricultural and urban development described in Section 3.7.1.1 has been accompanied by infrastructure to support these land development uses. Some of the major infrastructure constructed and operated in the Planning Area is described below.

Water Supply. Most of the water supply for existing urban development in the Planning Area is sourced from groundwater wells, with a limited amount of surface water used. Groundwater is pumped by individual users and by Planning Area water districts from two groundwater basins that underlay the Planning Area: the Central Area basin and the South (Galt) Area basin. The Central Basin is managed by the Sacramento Central Groundwater Authority, which has also adopted a management plan, consistent with the Sacramento Water Forum objectives, that addresses groundwater decline and quality in the Central Basin. Some of the water purveyors located within the Central Basin rely entirely on groundwater pumping, and some purveyors' production wells have been affected by groundwater decline and contamination.

The surface water supply used by existing urban development in the Planning Area is diverted from the Sacramento River west of the Planning Area and from the American River north of the Planning Area.

A recently constructed and operating major surface water project in the Planning Area is the Freeport Regional Water Project, which includes the following components constructed in the Planning Area between 2007 and 2011:

- Vineyard Surface Water Treatment Plant, a water treatment plant located in central Sacramento County on an 80-acre parcel at the northeast corner of Florin and Knox Roads, and 1 mile east of Bradshaw Road, with existing capacity to treat up to 50 million gallons of drinking water per day and future capacity to treat up to 100 million gallons per day
- A terminal facility located at the point of delivery to the Folsom South Canal
- A canal pumping plant located at the Folsom South Canal terminus
- A series of settling basins
- Four underground pipelines carrying the water from the intake facility to the Vineyard Surface Water Treatment Plant and (via the Folsom South Canal) to the Mokelumne Aqueducts outside the Planning Area.

Surface waters are also diverted from the American River into the Folsom South Canal, a 26.7-mile-long concrete-lined canal that traverses the Planning Area from north to south. The Folsom South Canal, part of the larger Central Valley Project, is used to supply water for irrigation and municipal and industrial use in Sacramento and San Joaquin Counties. With a bottom width of 34 feet and maximum water depth of 17.8 feet, the Folsom South Canal presents a substantial barrier to east–west movement and dispersal of native terrestrial wildlife species in the Planning Area.

Flood Control. Within the UDA, many of the streams have small levees constructed adjacent to the channels, and these streams primarily converge into the Morrison Creek channel near the Sacramento River. Outside the UDA, many streams also have levees constructed adjacent to their channels, and most of these streams converge with the Cosumnes River, which eventually flows into the Mokelumne River. The South County Streams Group Project is a federally authorized flood control project implemented by the U.S. Army Corps of Engineers, Central Valley Flood Protection Board, and Sacramento Area Flood Control Agency for lower Morrison Creek and its principal tributaries (i.e., Florin Creek, Elder Creek, and Unionhouse Creek); the project consists of levee improvements starting south of the town of Freeport, running easterly along the southern edge of the urbanized area, and extending up four creeks. The easternmost portion of improvements planned for Florin Creek and Morrison Creek (east of Highway 99) are within the Planning Area.

Morrison Creek conveys flow to the low-lying Beach/Stones Lake Basin adjacent to the Sacramento River levee, where during wet weather events, most excess flow is pumped into the Sacramento River and some flows drain further south into Snodgrass Slough and to the Mokelumne River.

South of the Morrison Creek system (in the Planning Area outside the USB), important floodplain areas include Deer Creek, Cosumnes River, Laguna Creek (which conveys much of the drainage from the City of Galt), and Dry Creek. These streams are all contained by constructed levees that are managed by local reclamation districts.

Two major dams upstream of the Planning Area allow for storage of upstream runoff for release during the summer season in and downstream of the Planning Area. These dams are Folsom Dam and Nimbus Dam on the American River, both outside the Planning Area to the northeast. The Cosumnes River is unique in that it is the only west-slope Sierra river that does not have a dam constructed on the main-stem of the river.

Urban Wastewater. The large majority of municipal wastewater generated in the UDA is collected and conveyed to the Sacramento Regional Wastewater Treatment Plant (SRWTP) operated by the Sacramento Regional County Sanitation District (Regional San). The SRWTP provides service for 1.4 million people located within the Cities of Sacramento, West Sacramento, Rancho Cordova, Citrus Heights, Elk Grove, and Folsom; unincorporated areas of Sacramento County; and the communities of Courtland and Walnut Grove. The SRWTP currently treats approximately 141 million gallons per day of inflow and produces secondary treated effluent that is discharged to the Sacramento River near the town of Freeport. As a result of permit requirements adopted by the Central Valley Regional Water Quality Control Board in 2010, and subsequent amendments, Regional San is underway with construction of treatment process improvements at the SRWTP for improved contaminant removal performance, including additional nutrient removal (i.e., ammonia and nitrate reduction) and tertiary filtration on a seasonal basis during the dry season to increase pathogen removal (Regional San 2014). Construction of the new SRWTP is scheduled to be completed in 2023.

Also in the Planning Area, the City of Galt wastewater treatment plant currently produces about 2.3 million gallons per day of tertiary treated effluent and discharges to Laguna Creek, which flows to the lower Cosumnes River.

Roadways. Interstate 5 and State Route 99 are two existing major highways running north–south in the western part of the Planning Area. U.S. Highway 50, serving east–west traffic, is located on the northern edge of the Planning Area. State Route 16 (Jackson Road) and State Route 104 (Twin Cities Road) cross the southern part of the Planning Area and provide east–west traffic connectivity.

Other major roadways existing within the Planning Area are four-lane thoroughfares or heavily used two-lane arterial roads, including Folsom Boulevard, White Rock Road, Gerber Road, Kiefer Boulevard, Scott Road, Ione Road, Excelsior Road, Bradshaw Road, Vineyard Road, Elk Grove-Florin Road, South Watt Avenue, French Road, Power Inn Road, Stockton Boulevard, Florin Road, Jackson Highway, Grant Line Road, Calvine Road, Wilton Road, Dillard Road, Clay Station Road, Hood-Franklin Road, Bruceville Road, Franklin Boulevard, and Twin Cities Road .

Within the City of Galt, existing major roadways include a section of Twin Cities Road (State Route 104), Walnut Avenue, Elm Avenue, Simmerhorn Road, Boessow Road (C Street), A Street, New Hope Road, Lincoln Way, and Carillion Boulevard.

Within the portion of the City of Rancho Cordova located within the Planning Area, existing major streets include Sunrise Boulevard, White Rock Road, International Drive/Mather Field Road, Douglas Road, Grant Line Road, Zinfandel Drive, Rancho Cordova Parkway/Jaeger Road, Folsom Boulevard, Nike Road, and Bradshaw Road.

Airports. Two public-use airports are located within the Planning Area—Mather Airport and Franklin Field. Mather Airport, which was formerly the Mather Air Force Base, is located in the UDA portion of the Planning Area and is adjacent to the City of Rancho Cordova. The airport was first constructed in the early 1900s and is currently owned and operated by Sacramento County. Redevelopment activities on the former base property have included airport-related, commercial, and industrial uses (Sacramento County 2010). Mather Airport is surrounded to the north and west by residential and commercial development and to the south and east by undeveloped land and agricultural operations with applications in to the County of Sacramento for master-planned communities. Since its conversion from a military airfield to a public/commercial facility, non-military flights have increased at this facility, specifically air cargo. During 2012, Mather Airport supported 79,786 flight operations, including cargo, general aviation, air taxi, and military. Over the 5 years from 2008 to 2012, an average of 79,535 flight operations occurred annually (FAA 2013). The *Mather Airport Master Plan* update for the continued operation and maintenance of the airport was adopted by the Board of Supervisors in August 2014 (Sacramento County 2014).

Franklin Field is located in southern Sacramento County approximately 1 mile northeast of the intersection of Twin Cities Road and Franklin Boulevard (see Figure 4-4). Franklin Field is currently a public-use airport owned and operated by the County of Sacramento, and was the site of bomber training during World War II. Franklin Field is surrounded by agricultural operations, including row crops and grazing lands. The facility is considered an uncontrolled airport since it does not have an air traffic control tower or personnel. There were approximately 36,000 operations in 2008 at Franklin Field, including flight training. The Airport

Master Plan Working Paper anticipates that operations at this airport will increase over time, reaching approximately 64,000 operations by 2027 (Sacramento County Airport System 2008).

3.7.1.3 Past and Present Mining Operations in the Planning Area

As mentioned in Section 1.3.1, gold has been mined in Sacramento County since 1849 by various lode and placer methods such as hydraulic mining, drift mining, drag-line dredging, and bucket-line dredging. The vast majority of gold recovered in Sacramento County has been from large placer operations. Dredging operations in Sacramento County began in 1899 in the vicinity of Folsom, located northeast of the Planning Area. The Folsom Dredge Field is one of the most extensive historic dredging operations in California. When combined with other dredged and hydraulically mined areas in Sacramento County, an estimated total area of 54.4 square miles was disturbed by placer mining operations in north-central and northeastern Sacramento County, including large areas within the Planning Area. As of 1999, an estimated 80% of these dredged areas Countywide had been reclaimed for other land uses (Division of Mines and Geology 1999). Those remnants that remain in the Planning Area typically support minimal vegetation, but may include bands of the Mine Tailing Riparian land cover type interspersed among or between mounds of dredge spoiling (see Chapter 8 for discussion of Planning Area land cover types).

All of the currently permitted mining operations in unincorporated Sacramento County are located within the Planning Area. Aggregate mining occurs both inside and outside the UDA, with 24 permitted aggregate mines, 21 of which are currently active. Additionally, one application for an additional aggregate mine is being processed by the County. Clay is currently being surface mined in four locations within the County, including along the Cosumnes River, topsoil is currently mined near the Cosumnes River, and there is one existing pumice pit.

The lead agencies anticipate mining in existing permitted locations would continue in the Planning Area inside and outside the UDA for the next 20 to 50 years. Therefore, the impacts of mines in those locations are considered by this EIS/EIR cumulative analysis to be a continuation of present conditions.

3.7.1.4 Past and Present Preservation of Natural Lands in the Planning Area

The Planning Area includes several established existing preserves both inside and outside of the UDA. Existing preserves within the Planning Area total approximately 64,500 acres and include a national wildlife refuge, large and small nature preserves, lands under conservation easements as well as conservation bank lands, and individual mitigation sites preserved in perpetuity by past projects that were authorized or permitted under the CWA, ESA, California Endangered Species Act (CESA), and/or local environmental regulations. Of the approximately

64,500 acres of existing preserves, approximately 3,170 acres are inside the UDA and about 61,330 acres are outside the UDA.

Inside the UDA, most existing preserves occur near the Sacramento Valley Vernal Pool Prairie Preserve, in an area located south of Jackson Highway between Excelsior and Eagles Nest roads and north of Grant Line Road. These include lands under conservation easement or owned by the Sacramento Valley Conservancy, two mitigation banks (Arroyo Seco and Bryte Ranch), and several mitigation sites established by past projects or activities. Other sites with permanent conservation easements are more scattered inside the UDA, including at locations along northern Laguna Creek, locations within the City of Rancho Cordova, and at the Keifer Landfill Bufferlands. In addition, the 2,650 acres of preserved lands at the Sacramento Regional County Sanitation District Bufferlands, located in the western part of the UDA, have "termed" conservation easements, meaning those acres are currently preserved, but might not be preserved in perpetuity. In addition, the ~~2,650~~**2,150** acres of preserved lands at the ~~Sacramento Regional County Sanitation District~~ **Regional San** Bufferlands, located in the western part of the UDA, have "termed" conservation easements, meaning those acres are currently preserved, but might not be preserved in perpetuity.

Outside of the UDA, relatively large areas have been preserved in the Planning Area west of Interstate 5, within the Cosumnes River floodplain, and in the eastern part of the Planning Area outside the UDA. Existing preserves larger than 500 acres include the Stone Lakes National Wildlife Refuge, Deer Creek Hills, Chance Ranch, Borden Ranch, Snyder Preserve, Clay Station Conservation Bank, Laguna Terrace Conservation Bank, Gill Ranch Conservation Bank, Elliot mitigation site, Delta Meadows, Sacramento Municipal Utilities District mitigation bank, and the Cosumnes River Preserve. Smaller conservation sites are distributed within the Cosumnes River and Deer Creek corridor, eastern Sacramento County grasslands, and agricultural lands west of State Route 99. In addition to these relatively large preserves, several smaller mitigation and conservation banks have been authorized by the USFWS and/or U.S. Army Corps of Engineers in the Planning Area outside the UDA.

3.7.2 Reasonably Foreseeable Other Actions

Reasonably foreseeable future "other actions" are actions that would affect the environment in the future, and are not activities that would occur as part of the proposed action and other action alternatives (CEQ 1997). The planned development and infrastructure described in the adopted General Plans and other documents presented in Section 3.4, including the expected "full build-out" of the UDA, are reasonably foreseeable within this Planning Area. However, those future development projects and activities are Covered Activities under the two EIS/EIR action alternatives, and the No Action/No Project Alternative includes similar future urban development projects and activities. Therefore, the EIS/EIR list of reasonably foreseeable future

"other" actions in or near the Planning Area is limited to foreseeable new projects or activities not included as part of the descriptions of the No Action/No Project Alternative (Section 2.2) or the description of the two action alternatives (Sections 2.3 and 2.4).

For this EIS/EIR, reasonably foreseeable future other actions were identified based on information extracted from existing environmental documents, and investigation of future project plans by other state and federal agencies and private entities (CEQA Guidelines, Section 15130[a][1]).

3.7.2.1 Other Urban Development by Elk Grove and by Rancho Murieta

Urban development is expected to continue adjacent to the EIS/EIR Planning Area within the existing boundaries of the community of Rancho Murieta and the City of Elk Grove (Figure 1-1). Although these communities are outside the current Planning Area boundary, past, present, and new urban development in these locations would be included in the cumulative impact study area for several resource topics analyzed in Chapters 4–16, including hydrology, water quality, natural communities, species habitat, wetlands and waters, transportation, air quality, and climate change.

"Rancho Murieta North" was originally proposed in 2014, and an EIR for that new development project is under preparation (Sacramento County 2015). The project would be located on approximately 770 acres, which is most of the remaining land within the Rancho Murieta Planned Development, as approved in 1969. The entire Rancho Murieta Planned Development is outside the EIS/EIR Planning Area. The Rancho Murieta North project would include approximately 300 acres of new residential development, 430 acres of Park/Recreation/Open Space, and 40 acres of General Commercial land uses.

It is reasonably foreseeable that the City of Elk Grove will eventually annex land south and southwest of their current SOI boundary. As of the writing of this EIS/EIR, landowners south of the current Elk Grove city boundary have submitted a proposal to the Local Agency Formation Commission to expand the Elk Grove SOI that includes approximately 1,150 acres of land currently under County jurisdiction (LAFCO 2016). This proposed SOI expansion is located south of Kammerer Road and west of Highway 99, outside the UDA but within the Planning Area. New urban development is proposed for the majority of that approximately 1,150-acre area.

Additionally, the City of Elk Grove has submitted a proposal to LAFCO to simultaneously expand its SOI and annex approximately 560 acres of land southeast of its current boundary (LAFCO 2016). This proposed 560-acre expansion is located within the UDA portion of the Planning Area south of Grantline Road and east of the Union Pacific Railroad tracks, and is currently under County jurisdiction. Under the City of Elk Grove's proposal, this land is intended to be used for public uses, including a large soccer complex.

3.7.2.2 Other Future Rural Residential Development

Low-density rural development would continue to occur outside the UDA within the approximately 19,600 acres of designated Agriculture Residential areas in Sacramento County, consistent with the County's General Plan (Sacramento County 2011). Within areas designated as Agricultural Residential by the Sacramento County General Plan, construction of new residential structures may occur, along with associated grading, landscaping, and accessory structures.

3.7.2.3 Future Agricultural Conversion

Changes in farmland and other agricultural land uses are not proposed as Covered Activities but are reasonably expected to occur in the future in areas outside the UDA that are zoned for agricultural uses. It is not possible, however, to predict how crop types or agricultural uses may change over the 50-year permit term. Nonetheless, some conversion of rangeland that supports Valley Grasslands and Vernal Pool Ecosystem to a more intensively managed agricultural use (such as cropland, vineyards, or orchards) would be expected over the 50-year study period. This conversion of rangeland to orchards or vineyards would include "deep-ripping" of soils, which would remove the existing soil structure that forms the perched aquifer and supports the ecology of the Vernal Pool Ecosystem. Changes to more intensively managed agricultural uses would result in the types of effects similar to those discussed in Section 3.7.1.1 and Appendix G. Grading or construction of new structures to support future changes in agricultural use, such as barns, corrals, and fences, would also be expected in areas zoned for agricultural uses.

3.7.2.4 California High-Speed Rail

Construction of a high-speed train through the Planning Area is a reasonably foreseeable project that could occur within the next 50 years (California High Speed Rail Authority and Federal Railroad Administration 2005; California High Speed Rail Authority 2013). The Federal Railroad Administration and the California High-Speed Rail Authority have adopted a state-wide program EIR/EIS (California High Speed Rail Authority and Federal Railroad Administration 2005), which studied various alignment options for the train system. The exact alignment within Sacramento County is not yet determined, but up to 35 linear miles of the Merced to Sacramento segment of the high-speed rail line could bisect the Planning Area (California High Speed Rail Authority 2013). The standard width of the high-speed rail line's right-of-way would be 600 feet, but the right-of-way width would be substantially wider in locations where the rail line crosses existing roadways. Existing roadways will be elevated and bridges installed where the rail line would cross, requiring rights-of-way of up to 900 feet wide to allow construction of the new roadway embankments and bridge footings (DiGegoria, pers. comm. 2016).

3.7.2.5 Wilton Rancheria Casino

The Miwok tribe is proposing to develop a casino resort at one of two sites in Sacramento County (BIA 2015). As of June 2016, the tribe's preferred site is within the City of Elk Grove outside the Planning Area, but another potential location is on a 282-acre site in the City of Galt SOI. If the Galt SOI site were selected, the casino resort would cover approximately 76 acres of the 282-acre parcel and would include a 12-story hotel tower, convention center, spa, restaurants, and a 110,000-square-foot gambling floor. The project could generate the equivalent of 1,750 full-time jobs and host up to 14,000 patrons per day, according to the Draft EIS prepared for the federal Bureau of Indian Affairs (BIA 2015).

3.7.2.6 California WaterFix

The California WaterFix project (CDWR and USBOR 2015) is a proposed water conveyance facility with three new intakes on the Sacramento River at the western edge of the Planning Area and dual tunnels to convey water to existing state and federal pumping plants located in San Joaquin County. Approximately 12 miles of the proposed pipeline route would be located within the southwestern portion of the Planning Area. California WaterFix was previously part of the Bay Delta Conservation Plan, but the project no longer includes mitigation or conservation activities through an HCP. Instead, the project proponent, the California Department of Water Resources, proposes to mitigate construction and future direct and indirect operation impacts of the California WaterFix project by restoring approximately 2,300 acres of habitat and preserving up to 13,300 acres of habitat in the Delta. The locations of the habitat restoration and preservation associated with California Waterfix are not certain, but most are expected to be located outside the western boundary of the EIS/EIR Planning Area within the legal boundary of the Sacramento-San Joaquin River Delta. However, some California WaterFix project restoration or preservation actions might occur in the southwest part of the EIS/EIR Planning Area in the small portion of the Cosumnes River floodplain that overlaps with the legal boundary of the Sacramento-San Joaquin River Delta (CDWR and USBOR 2015).

3.7.2.7 Preservation of Natural Lands in the Planning Area (Not Project Mitigation)

Other entities are expected to continue to preserve lands within the Planning Area. The existing Stone Lakes National Wildlife Refuge has an 18,000-acre planning boundary that is located in the western part of the Planning Area outside the USB (USFWS 2007). At the time of EIS/EIR preparation, Stone Lakes National Wildlife Refuge has preserved 6,420 acres through fee-title acquisitions and conservation easements. Although there are no official projections about how quickly the refuge would be able to acquire land, the No Action/No Project Alternative assumes that by the end of the 50-year study period, the entire 18,000-acre refuge planning area would

be acquired and preserved by the Stone Lakes National Wildlife Refuge. This addition to Stone Lakes National Wildlife Refuge would provide an additional 11,580 acres of habitat preservation compared to the existing condition.

The Draft EIS/EIR assumes that Stone Lakes National Wildlife Refuge (NWR) would enroll properties at the same rate that it has since its creation. Since the adoption of the approximately 18,000-acre refuge boundary in 1992, Stone Lakes NWR has enrolled 6,550 acres. That amounts to an average rate of acquisition of 262 acres per year. Extending that same rate of acquisition over the proposed 50-year permit term of the SSHCP, Stone Lakes NWR would acquire an additional 13,100 acres. That amount would more than complete the approximately 18,000-acre approved refuge boundary.

The existing Cosumnes River Preserve is located in the south part of the Planning Area, outside the USB. The Cosumnes River Preserve currently preserves approximately 46,000 acres of blue oak woodlands, valley grassland, vernal pool, freshwater marsh, and cropland along the Cosumnes River or in the floodplain of the Cosumnes River. The *Cosumnes River Preserve Management Plan* (Cosumnes River Preserve 2008) describes plans to acquire an additional 5,450 acres of riparian habitat that is currently unprotected along the Cosumnes River by 2028.

Other nongovernmental organizations, such as the Sacramento Valley Conservancy, Audubon Society, and others have previously preserved approximately 13,900 acres in the Planning Area under the existing conditions. The No Action/No Project Alternative assumes that these organizations will continue to preserve lands in the Planning Area, specifically the areas identified on the "Twenty-First Century Open Space Vision" map (Sacramento Valley Conservancy 2014).

There are eight approved mitigation or conservation banks in the Planning Area totaling 5,320 acres. Additional mitigation or conservation banks may be established in the Planning Area during the study period, but specific acreages are not known.

3.7.2.8 Proposed Urban Development in the Planning Area That is Not Included in the EIS/EIR Alternatives

Several properties within the UDA have already obtained local entitlements and have obtained, or are close to obtaining, individual CESA, ESA, and CWA authorizations from the USFWS, CDFW, and U.S. Army Corps of Engineers. These properties include those in the Rio Del Oro Specific Plan area and those in the Mather Field Specific Plan area. Therefore, while these properties are located within the EIS/EIR Planning Area, they are not included in the EIS/EIR impact analyses because future projects and activities within these areas will not obtain their ESA, CESA, or CWA authorizations through the proposed SSHCP or one of the other EIS/EIR alternatives. However, future impacts on these properties will be included in the cumulative impact analysis of each EIS/EIR alternative.

3.8 SIGNIFICANCE OF IMPACTS THAT ARE PRESENTED IN CHAPTERS 4 THROUGH 16

3.8.1 Significance Thresholds

NEPA regulations require that the determination of significance consider both context and intensity of the impacts (40 CFR 1508.27). "Context" means that the significance of an impact must be analyzed in several contexts, including the affected region, locality, affected interests, and society as a whole. "Intensity" refers to the severity of the impact and must consider: (1) both beneficial and adverse effects; (2) the degree to which the action affects public health and safety; (3) unique characteristics of the area, including cultural resources, parks, farmland, wetlands and critical areas; (4) if the effects are likely to be controversial; (5) if there are any unique or unknown risks; (6) if the action is precedent setting; (7) if the action is related to other actions or are cumulatively significant; (8) the degree that the action affects districts, highways, structures, objects eligible for the National Register of Historic Places, or cause loss of scientific, cultural, or historical resources; (9) the degree to which the action affects endangered or threatened species or their critical habitat; and (10) whether the action threatens a violation of federal, state, or local laws or requirements imposed to protect the environment (40 CFR 1508.27).

Under CEQA, a significant impact on the environment is defined as a "substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by a project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance" (CEQA Guidelines, Section 15382). As provided under CEQA Guidelines Section 15143, and consistent with NEPA regulation 40 CFR 1508.7, each determination of significance will consider the context, intensity or severity of the impact, and probability of occurrence. An economic or social change by itself shall not be considered a significant effect on the environment, but a social or economic change related to a physical change may be considered in determining whether the physical change is significant (CEQA Guidelines, Section 15382). In general, an EIR should define the thresholds of significance and explain the criteria used to judge whether an impact is above or below that threshold (CEQA Guidelines, Section 15064[f]).

A "threshold of significance" is an identifiable quantitative, qualitative, or performance level of a particular environmental effect. Determining whether a project may have significant effect on the environment calls for careful judgement on the part of the lead agencies. The decision should be based to the extent possible on the best available scientific and factual data. However, a single ironclad definition of "significant effect" is not possible because the significance of an effect may vary with setting (CEQA Guidelines, Section 15064[b]). In determining the significance of the environmental effects, the lead agency shall consider direct

and indirect physical changes in the environment that may be caused by the project. Tools for determining the threshold of significance include the CEQA mandatory findings of significance (CEQA Guidelines, Section 15065), Appendix G of the CEQA Guidelines (the model Initial Study Checklist), agency regulatory standards, consultations with other agencies, and a lead agency's specific thresholds of significance.

As outlined in Section 3.3, the Environmental Consequences/Environmental Impact sections of Chapters 4–16 include a Methodology subsection, which explains the criteria considered and identifies the thresholds of significance used to determine the significance of impacts to the resource topics evaluated in that chapter. The criteria used and the thresholds for determining the significance of impacts on each resource topic are based on Appendix G of the CEQA Guidelines, and on the resource-specific sources described in the Methodology section. Some of the Appendix G thresholds were modified where appropriate to meet the circumstances of that resource topic within this Planning Area.

3.8.2 Impact Findings and Mitigation of Significant Impacts

As discussed in Section 1.1, one purpose of an EIS is to provide a full and fair discussion of the environmental impacts, and to inform decision makers and the public of reasonable alternatives (40 CFR 1502.1). Under CEQA, however, the significance of each impact disclosed in an EIR must be determined. CEQA further requires that, whenever possible, agency decision makers must adopt feasible mitigation to avoid or substantially lessen any significant impact (California Public Resources Code, Section 21002).

The impact analyses presented in Chapters 4–16 compare the impacts of each alternative to the thresholds of significance established for that resource topic. As required by CEQA, if an impact meets or crosses a threshold of significance, the EIS/EIR must identify feasible mitigation measures, which could minimize the significant adverse impact. An EIR must also identify those significant environmental effects that can be mitigated but not reduced to a level of insignificance (CEQA Guidelines, Section 15126.2[b]). Therefore, the Environmental Consequences/Environmental Impact analyses in Chapters 4–16 first present a statement of each impact's significance, before considering any additional mitigation measures that might be added by the EIS/EIR. If an impact is found to be significant, then a second statement of each impact's significance is presented after the analysis considers the additional mitigation measures added by the EIS/EIR.

Although NEPA regulations do not require lead agencies to reduce EIS significant impacts to a less-than-significant level, the practice to include feasible mitigation whenever possible to reduce a significant impact is consistent with NEPA's definition of mitigation (40 CFR 1508.20) and is consistent with NEPA regulations requiring agencies to include appropriate mitigation

measures not already included in the description of the proposed action or an alternative (43 CFR 1502.14[f]), and the requirement that the Environmental Consequences section of an EIS must discuss means to mitigate adverse environmental impacts (40 CFR 1502.16[h]).

As discussed in Section 3.6.1, the baseline (the basis of comparison) used in this EIS/EIR to describe and evaluate the significance of each environmental impact of the action alternatives is the No Action/No Project Alternative (i.e., the expected future condition of the Planning Area without an HCP implemented in south Sacramento County).

The potential impact findings used in this EIS/EIR are defined below.

- ***No Impact/Effect*.** This impact would cause no discernible adverse or beneficial change in the physical environment of the chapter's resource topic.
- ***Less Than Significant Adverse Effect.*** This impact would cause a discernible, but not substantial, adverse change in the physical environment of the chapter's resource topic.
- ***Significant Adverse Effect*.** This impact would cause a substantial, or potentially substantial, adverse change in the physical condition of the chapter's resource topic within the area affected. Therefore, the EIS/EIR would identify additional mitigation measures, if feasible, to reduce the adverse impact to less than significant. Impacts are determined to be significant based on the criteria and thresholds of significance identified for that resource topic. Significant impacts fall into two categories: (1) those adverse impacts for which there is feasible mitigation available that would avoid or reduce the environmental impacts to less-than-significant levels, and (2) those adverse impacts for which there is either no feasible mitigation available or for which, even with implementation of feasible mitigation measures, there would remain a significant adverse impact on the environment. Those impacts that cannot be reduced to a less-than-significant level by mitigation are identified as significant and unavoidable adverse effects**.**
- ***Significant and Unavoidable Adverse Effect*.** This impact would cause a substantial adverse change in the environment of the chapter's resource topic and cannot be avoided or mitigated to a less-than-significant level if the action is implemented. Even when the impact finding remains significantly adverse after the application of mitigation measures, the project proponent is still obligated to incorporate all feasible measures to reduce the severity of the impact.
- ***Minor Beneficial Effect*.** The impact would result in a discernible improvement of the chapter's resource topic, when compared to the environmental conditions of the baseline (see Section 3.6.1).
- ***Significant Beneficial Effect*.** The impact would result in a substantial or significant improvement of the chapter's resource topic when compared to the environmental conditions of the baseline (see Section 3.6.1).

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