4.0 CUMULATIVE IMPACTS

4.1 INTRODUCTION

This section of the Draft EIS presents the cumulative impacts of the Proposed Action and its alternatives. National Environmental Policy Act (NEPA) regulations require that cumulative impacts of a proposed action be assessed and disclosed in an EIS. Council on Environmental Quality (CEQ) regulations define a cumulative impact as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable 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)

According to a 1997 CEQ publication entitled, "Considering Cumulative Effects Under the National Environmental Policy Act," cumulative effects must be evaluated along with the direct effects and indirect effects (those that occur later in time or farther removed in distance) of each alternative. The range of alternatives considered must include the no action alternative which can be used as a baseline against which to evaluate cumulative effects. The CEQ guidance also describes the concept of baseline as "[T]he baseline condition of the resource of concern should include a description of how conditions have changed over time and how they are likely to change in the future without the proposed action" (CEQ 1997). The range of actions that must be considered includes not only the project proposal but all connected and similar actions that could contribute to cumulative effects.

4.2 APPROACH TO CUMULATIVE IMPACT ANALYSIS

This Draft EIS uses a six-step approach in developing a cumulative impact analysis. These steps include the following: (1) identify resources to consider in the cumulative impact analysis; (2) define the timeframe for cumulative impact assessment; (3) define study area for each resource; (4) identify other reasonably foreseeable future actions that could also affect the resource; (5) assess and report potential cumulative impacts by first describing the current health and historical context for each resource and then identifying the direct and indirect impacts of the Proposed Action that might contribute to a cumulative impact; and (6) assess the need for mitigation. These steps are described in more detail below.

4.2.1 Identification of Resources to consider in the Cumulative Impact Analysis

The US Army Corps of Engineers (USACE) used NEPA guidance to identify resource topics that would be considered in the cumulative impact analysis (40 CFR 1508.25). From a review of the likely environmental impacts analyzed in **Chapter 3.0**, **Affected Environment and Environmental Consequences**, the USACE determined that the analysis of cumulative impacts would be limited to the following resource topics: Biological Resources, Aesthetics, Agricultural Resources, Air Quality, Cultural Resources, Hydrology, Noise, and Utilities.

With respect to the remaining topics, the analysis in **Chapter 3.0**, shows that the Proposed Action and its alternatives would either not result in any direct or indirect impacts and therefore would not contribute

to a cumulative impact (i.e., there would be no impact related to environmental justice; therefore the Proposed Action would not contribute to a cumulative impact related to environmental justice); or that the nature of the resource is such that impacts do not have the potential to cumulate (i.e., impacts related to geology are site specific and do not cumulate); or that the analysis in **Chapter 3.0** is in essence a cumulative analysis and no further evaluation is required. For example because climate change is global in nature, the analysis in **Section 3.5, Climate Change,** is inherently a cumulative impact assessment. Similarly, the traffic analysis in **Section 3.14, Transportation and Traffic**, evaluates the effects from traffic that would result from growth in regional traffic through 2025 combined with the growth in traffic due to the Proposed Action at buildout. That analysis, therefore, presents the cumulative traffic impacts that were determined to be significant and the Proposed Action's contribution to the cumulative impacts was found to be substantial. Mitigation measures are proposed to address the Proposed Action's contribution to the cumulative traffic impacts.

No scoping comments were received that identified specific resources that should be considered in the cumulative impact analysis.

4.2.2 Definition of Timeframe for Analysis

For each resource topic that was carried forth for cumulative impact assessment, the timeframe for cumulative analysis was defined based on the specific characteristics of the resource.

Timeframe for Analysis - Biological Resources

As required by NEPA, this analysis considers cumulative effects of the Proposed Action in combination with other past, present and reasonably foreseeable future projects. The Clean Water Act (33 USC §1251 et seq. (1972)) was enacted in 1972. This law gave authority to the USACE to issue permits for the discharge of dredge or fill materials into navigable waters of the US. As the USACE has been regulating the filling of wetlands since 1972, the timeframe that bounds the cumulative impact analysis in this Draft EIS for wetland and related special-status species impacts is approximately 40 years in the past, (i.e., year 1970).

As noted in **Chapter 2.0, Proposed Action and Alternatives**, the Proposed Action is anticipated to be fully built out in 15 to 30 years depending on housing market conditions. Therefore, 40 years in the future would serve as an appropriate timeline for the identification of other reasonably foreseeable future actions to be considered in the cumulative impact analysis. Another point of reference is the Placer County Conservation Plan (PCCP), which uses a timeframe of 50 years in the future. The PCCP is based on long-range growth projections for western Placer County which go out 50 years into the future. Based on the above, the timeframe used to bound the analysis is approximately 40 to 50 years in the future, (i.e., year 2060).

Timeframe for Analysis - All Other Resources

The timeframe for evaluation of cumulative impacts of all other resources is also development that has occurred in the area around the project site in the past 40 years and future development that is anticipated in the next 40 to 50 years for some resource topics. For other topics such as transportation and traffic, the timeframe for cumulative impacts has a horizon year of 2025.

4.2.3 Definition of Study Area

For each resource that was carried forth for cumulative impact assessment, the study area was defined based on the nature and characteristics of the resource.

Study Area - Biological Resources

Extensive areas of vernal pool habitat occur throughout California. Within the Central Valley, vernal pool habitat occurs in the transitional zone between the Sierra Nevada foothills and the valley flatlands. Although the Proposed Action is located in this transitional zone and therefore would contribute to the loss of vernal pool habitat in the entire Central Valley, to provide a more meaningful analysis of cumulative impacts, the study area for vernal pools and other biological resource impacts was defined to include a subregion of the Central Valley vernal pool belt. This subregion, shown in **Figure 4.0-1, Study Area for Cumulative Impacts**, includes all of western Placer County, the northern portion of Sacramento County, and the western portion of Sutter County.

To delineate the boundaries of this study area, the USACE conducted a review of aerial photographs from 1970 of western Placer County and adjoining portions of Sutter and Sacramento counties, which is close to the time when the Clean Water Act was enacted. As vernal pools typically occur in landscapes that are shallowly sloping or nearly level at a broad scale, and typically occur embedded in grasslands, all areas that exhibited these characteristics on the aerial photographs from 1970 were assumed to support vernal pools and were included in the study area by the USACE. Lands that did not support grasslands or showed other landscapes such as agricultural fields or urban development were excluded. This approach was used to define the northern, western, and southern boundary of the study area. The eastern boundary of the study area was defined based on elevation above sea level. Based on the observed distribution of vernal pools, vernal pools primarily occur at elevations below 200 feet (61 meters). Therefore, a generalized eastern boundary was drawn corresponding roughly to the 200-foot (61-meter) contour. The study area defined in this manner encompasses the Western Placer County core area in the Vernal Pool Recovery Plan.

The analysis of cumulative biological resource impacts is focused on this study area and documents the losses of vernal pool habitat that have occurred in this area since 1970 and additional losses that would result from the Proposed Action and other reasonably foreseeable future development through approximately 2060. As the study area is a subregion of the Central Valley vernal pool belt, past and present trends of habitat losses in the Central Valley are also briefly described below to provide the broader context for the cumulative impact.

Study Area - All Other Resources

The cumulative context for visual impacts is the area immediately surrounding the project site that has been previously developed or is proposed for development. Within this area, the study area is defined to include areas that are visible from major roadways, namely, Fiddyment Road and Baseline Road.

The study area for cumulative impacts to farmland is defined to be the northern Central Valley, particularly southwestern Placer County, northern Sacramento County, and southeastern Sutter County,

which contain a wide range of agricultural uses, from grazing and row corps to orchards, and contain soils that are similar to the project site.

The study area for cumulative air quality impacts is the Sacramento Valley Air Basin, which includes Butte, Colusa, Glenn, Sacramento, Shasta, Sutter, Tehama, Yolo, and Yuba counties, the western urbanized portion of Placer County, and the eastern portion of Solano County.

The study area for cumulative impacts on cultural resources is western Placer County because, to the extent that there are any pre-historic and historic resources within the project site, their significance is generally expected to be confined to the local area, and they are generally not expected to have a broader significance to the State of California. Therefore the cumulative impacts of the Proposed Action are not anticipated to cumulate with impacts of projects outside of western Placer County.

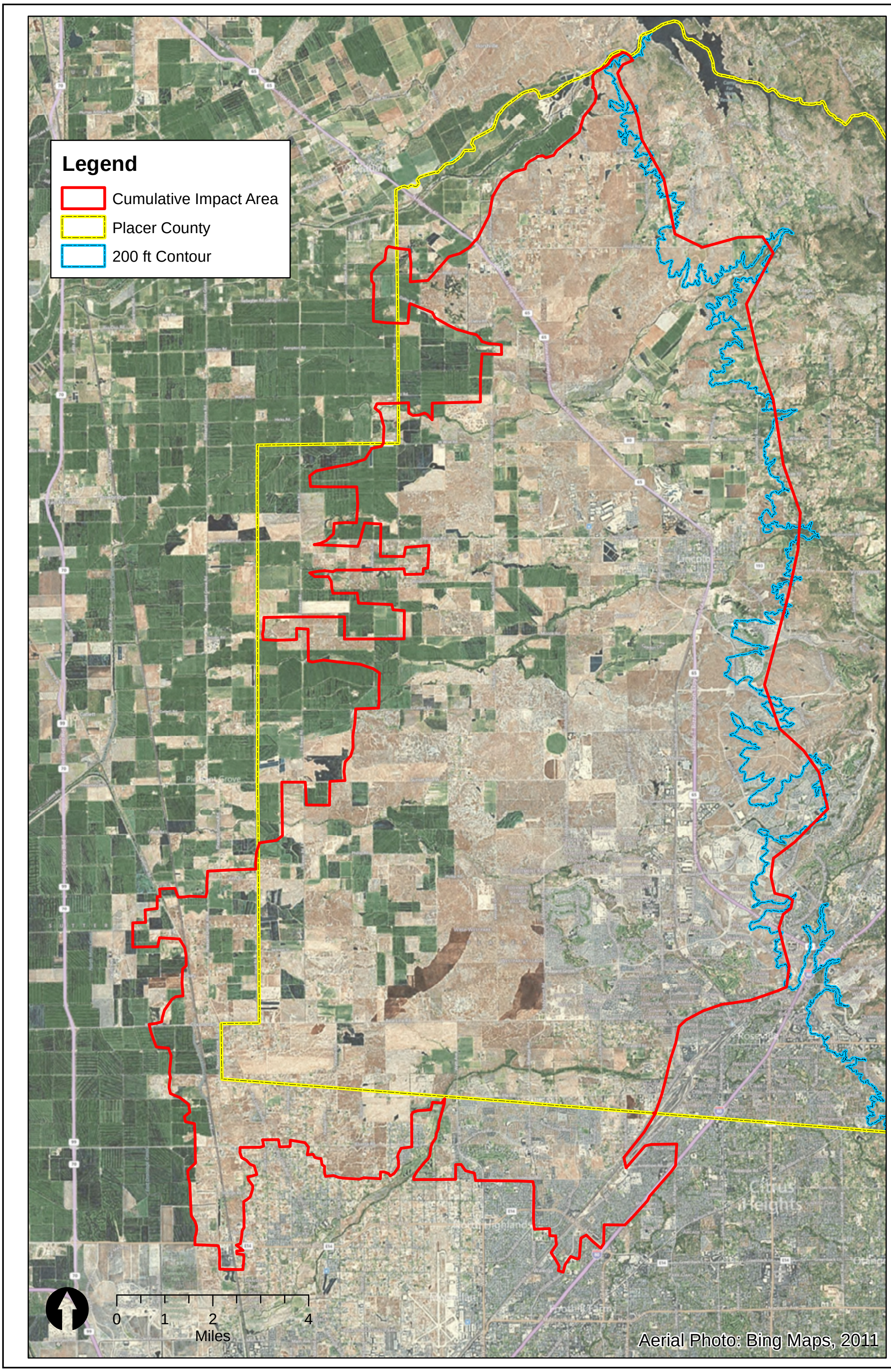
The study area for cumulative effects to surface water hydrology and water quality is Curry Creek watershed within which the Proposed Action would be located. The cumulative context for effects to groundwater is the North American Groundwater Sub-basin.

The cumulative context for noise depends on whether the source is mobile (traffic related) or stationary source related (factory, generator, etc.). Traffic from the Proposed Action would result in noise both inside and outside the project site. At the same time, the project site development would also be subjected to traffic noise associated with the development of other nearby areas. Consequently, the cumulative context for noise is southwestern Placer County.

The study area for potential cumulative impacts related to provision of utilities is the service area for each utility district, including the service areas of City of Roseville and the Placer County Water Agency for water supply; the City of Roseville's service area for wastewater, and the service area of the regional landfill for solid waste impacts.

4.2.4 Identification of Other Past, Present and Reasonably Foreseeable Future Actions and Projects

As noted above, the timeframe selected for most of the resource topics addressed in this cumulative impact assessment is 40 years in the past to approximately 40 to 50 years in the future. Given this timeframe, the evaluation of past actions could not be based on a list of projects. However, two methods were used to analyze the changes in the study area due to historical agricultural practices and land development over the last 40 years. Firstly, the USACE conducted a review of historical aerial photographs to characterize the changes in land use patterns at a landscape scale. Secondly, USACE conducted a review of permits issued for projects within the study area between approximately 1990 and 2011 to characterize the changes in the study area with respect to the waters of the US. Furthermore, the conditions that exist in the project area at this time, which are reflective of the effects of past actions, were fully considered in the evaluation of cumulative impacts.



SOURCE: Salix Consulting – 2011

FIGURE **4.0-1**

Study Area for Cumulative Impacts

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With respect to reasonably foreseeable projects and actions, those can be identified based on a list of past, present, and reasonably foreseeable projects/actions; or on a summary of growth projections. Because the development of the Proposed Action would occur over a long period of time (estimated between 15 and 30 years from authorization), the projections-based approach was used to identify other foreseeable development in the area of the Proposed Action. In order to provide a more detailed analysis of certain cumulative impacts, the projections were supplemented by a list of reasonably foreseeable projects. The list was developed by contacting the Cities of Roseville, Lincoln, and Placer County. The analysis of cumulative impacts was completed based on the Placer County General Plan, the proposed Placer County Conservation Plan (PCCP), the City of Roseville General Plan, City of Lincoln General Plan, and the growth projections provided by the Sacramento Area Council of Governments (SACOG). Each of these plans/projections used in developing the cumulative impact analysis is briefly described below.

Reasonably Foreseeable Future Actions under the Placer County General Plan

The Placer County General Plan, adopted by the Board of Supervisors in 1994, consists of two types of documents: the Countywide General Plan and a set of more detailed community plans covering specific areas of the unincorporated County. The Countywide General Plan provides an overall framework for development of the County and protection of natural and cultural resources. The goals and policies contained in the Countywide General Plan are applicable throughout the County, except to the extent that County authority is preempted by cities within their corporate limits. Community plans, adopted in the same manner as the Countywide General Plan, provide a more detailed focus on specific geographic areas within the unincorporated County. The goals and policies contained in the community plans supplement and elaborate upon, but do not supersede, the goals and policies of the Countywide General Plan.

The County has recently approved several large development and infrastructure projects in the vicinity of the Proposed Action. These include:[1]

- Placer Vineyards Specific Plan area, which is a County-approved mixed-use project on approximately 5,000 acres (2,000 hectares) with approximately 14,000 residential units and 6 million square feet of non-residential development.
- Riolo Vineyards Specific Plan site, which is a 500-acre (202-hectare) residential community subdivision that has been approved by the County.
- The Regional University and Community Specific Plan project is an approximately 1,100-acre (445-hectare) site, located northwest of the Sierra Vista Specific Plan (SVSP). It includes a 600-acre (242-hectare) area designated for a private university campus, and other areas designated for residential and commercial uses.
- The Placer Parkway Corridor selection has been completed by Placer County. The proposal is to eventually construct an approximate 15-mile-long, high-speed transportation facility, which will connect State Route (SR) 65 in western Placer County to SR 70/99 in south Sutter County. The selected corridor passes through the area north of the project site.

1 Placer County has not yet initiated a planning process to develop the Curry Creek Community Plan but may in the future. This Community Plan would be for the area west of the project site.

- An expansion of the Western Regional Sanitary Landfill, operated by the Western Placer Waste Management Authority.

Reasonably Foreseeable Future Actions under the City of Roseville General Plan

The City of Roseville General Plan, adopted by the City Council in 2010, serves as a long-term policy guide and vision for the physical, economic, and environmental growth of the City. Land designated and zoned for residential development within the existing City of Roseville boundaries is fully entitled for future development, and according to development projections is anticipated to be built out by 2025.

The City has previously approved or is processing several development and infrastructure projects in the vicinity of the Proposed Action. These include the following:

- West Roseville Specific Plan area, to the north, is currently under development.
- Fiddyment Road will be widened between Baseline Road and Pleasant Grove Boulevard by adding two additional lanes along the Sierra Vista frontage. This project was approved by the City of Roseville and a DA permit was issued by the USACE to authorize 0.46 acre of fill associated with the roadway-widening project. The project is scheduled for construction in summer 2012. Creekview Specific Plan is a proposed specific plan for the development of an approximately 500-acre site located immediately west and north of the City's existing boundary. This project has yet to be approved by the City. The Specific Plan includes 2,011 residential units and additional area designated for open space, parks, and commercial development. An application for a DA permit is on file with the USACE for this project.
- Amoruso Ranch Specific Plan is a proposed specific plan for the development of an approximately 674-acre (272-hectare) property located on the south side of West Sunset Boulevard about 1.5 miles west of Fiddyment Road. The proposed land use plan includes 2,785 residential units and two commercial parcels, a school site, parks, and a public facilities site.
- Placer Ranch Specific Plan includes 6,796 acres (2,750 hectares) in unincorporated Placer County. Originally proposed in the County, a development application was submitted to the City of Roseville in 2007. The project has been on hold since early 2008. While inactive at this time, it is likely that some development will occur on this site in the future.
- Westbrook Specific Plan. The City is currently processing an application for the development of a 400-acre (162-hectare) site to the northwest of the project site. The land use plan includes about 2,029 residential units, a school site, parks, open space, and land for commercial uses.
- Reason Farms is a 1,700-acre (688-hectare) area located northwest of the City boundary and west of the Creekview Specific Plan area. This area is currently maintained as open space by the City and the City plans to develop flood control projects on the site.

Reasonably Foreseeable Future Actions under the City of Lincoln General Plan

The City of Lincoln General Plan, adopted by the City Council in 2008, provides the City with a consistent framework for land use and resource decision making. The General Plan's diagrams, goals, policies, and implementation measures form the basis for City zoning, subdivisions, specific plans, and City projects. The General Plan's Land Use Diagram would allow for up to an additional 34,010 housing units, or an additional population of approximately 101,000 at buildout in the year 2050.

Reasonably Foreseeable Future Actions under the County of Sacramento General Plan

The County of Sacramento adopted the County of Sacramento 2030 General Plan in November 2011. The County of Sacramento 2030 General Plan provides for between 103,500 and 150,000 new housing units in Sacramento County. According to the plan, the area to the south of the Placer County boundary is generally designated for agricultural residential, low-density residential, and agricultural cropland land uses.

Sacramento County approved the Elverta Specific Plan, which encompasses 1,744 acres (796 hectares) of land. The Plan provides a set of policies and programs primarily for development of 4,950 residences, including urban residential and, agricultural-residential uses. The plan also includes a commercial site, parks, and open space areas. The Elverta Specific Plan was adopted by the Board of Supervisors in August, 2007. The project has not been implemented at this time.

Reasonably Foreseeable Future Actions under the Sutter County General Plan

The Sutter County Board of Supervisors approved a comprehensive update of the Sutter County General Plan on April 29, 2011. According to the approved land use diagram, the area immediately west of the Placer County boundary is designated for agricultural uses.

At this time, one major land development project is approved for the portion of Sutter County within the cumulative study area. Sutter Pointe Specific Plan, which encompasses approximately 7,528 acres (3,046 hectares) of land in south Sutter County, envisions establishment of a new city in south Sutter County for about 43,000 residents. The project proposes a diverse mix of land uses, including employment centers, many different housing types, retail shopping villages, recreation amenities, schools, community services, supporting on-and off-site infrastructure, roadway improvements, open space, and various public uses including a town center. The Sutter Pointe Specific Plan was approved by the Board of Supervisors on June 30, 2009.

Sacramento Area Council of Governments

The Sacramento Area Council of Governments (SACOG) is a regional organization that provides a variety of planning functions over its six-county region (Sacramento, Yolo, Placer, Sutter, Yuba, and El Dorado counties). SACOG's primary functions are to provide transportation planning and funding for the region and to study and support resolution of regional issues. SACOG conducted several local community workshops to help determine how the Sacramento region should grow through the year 2050. The result of these efforts was the SACOG Blueprint, a transportation and land use analysis suggesting how cities and counties should grow based on a set of smart growth principles that include transportation choices, mixed-use development, compact development, housing choices and diversity, use of existing assets, quality design and natural resources conservation.

In December 2004, the SACOG Board of Directors adopted the Preferred Blueprint Scenario (SACOG Blueprint), a vision for growth that promotes compact, mixed-use development and more transit choices as an alternative to low-density development. The project site, which includes the Proposed Action and on-site alternatives, is designated in the SACOG Blueprint for medium- and high-density mixed

residential uses and low- and medium-density mixed-use commercial centers in the near term. The Alternative 4 site is designated for rural residential uses in the near term and urban uses after year 2050.

Under the SACOG Blueprint, most of the area in Sacramento County to the south of the Proposed Action site is designated for single-family residential use and some medium-density residential and mixed residential uses. Areas in the southeastern portion of Sutter County are designated for industrial and medium-density mixed residential uses. North of this, the area along the Placer–Sutter County boundary is mostly designated for agricultural uses.

In April 2012, SACOG adopted the 2035 Metropolitan Transportation Plan (MTP)/Sustainable Communities Strategy (SCS) as required by Senate Bill 375. SB 375 requires the formation of a SCS to reach greenhouse gas target emissions by reducing vehicle miles. The 2035 MTP/SCS is a long-range transportation plan and sustainable communities strategy that will serve existing and projected residents and workers within the Sacramento region through the year 2035. The 2035 MTP/SCS accommodates another 871,000 residents, 362,000 new jobs, and 303,000 new homes with a transportation investment strategy of $35 billion.

Proposed Placer County Conservation Plan

The Placer County Conservation Plan (PCCP) is a proposed regional partnership between local jurisdictions (the County of Placer, South Placer Regional Transportation Authority (SPRTA), Placer County Water Agency (PCWA), and the City of Lincoln) and state and federal agencies (Department of Fish and Game (CDFG), US Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS), USACE, US EPA and the California Regional Water Quality Control Board). The PCCP has not been adopted by any jurisdiction as of the publication of the Draft EIS.

The purpose of the PCCP is to protect and enhance ecological diversity and function in the greater portion of western Placer County, while allowing appropriate and compatible growth in accordance with applicable laws. To this end, the PCCP describes how to avoid, minimize, and mitigate impacts on Endangered and Threatened species, thereby addressing the permitting requirements under the Federal and State Endangered Species Acts relevant to these species for activities conducted in the plan area by the permittees, including Placer County, the City of Lincoln, SPRTA, and PCWA. These covered activities include urban growth and a variety of road, water, and other needed infrastructure construction and maintenance activities. The PCCP also describes the responsibilities associated with operating and maintaining the new habitat reserves that will be created to mitigate anticipated impacts resulting from growth and development activities. The area proposed for permit coverage under the PCCP covers approximately 212,000 acres (86,000 hectares) in the City of Lincoln and unincorporated Placer County. The PCCP analyzes land use patterns and forecasts the extent and location of urban, suburban, and rural growth and seeks to reconcile potential future growth with the conservation strategy.

4.2.5 Evaluation of Potential Cumulative Impacts and Mitigation Measures

For each resource that was carried forth for cumulative impact assessment, the current health and historical context of the resource is described based on the best available information. The information was drawn from **Chapter 3.0**, of this Draft EIS, supplemented with additional data as necessary.

For each resource that was carried forth for cumulative impact assessment, potential cumulative impacts were evaluated either qualitatively or based on quantitative information where available. For each cumulative impact, as a first step it was determined whether the Proposed Action in conjunction with other past, current, and reasonably foreseeable future actions would result in a significant cumulative impact.

For those cumulative impacts that were determined to be significant, the Proposed Action's contribution to the cumulative impact was evaluated to determine whether the contribution would be significant.

As a last step, for those cumulative impacts that were determined to be significant, mitigation measures were identified to be implemented by either the Applicants or the USACE, or both.

4.3 CUMULATIVE IMPACTS OF THE PROPOSED ACTION AND ALTERNATIVES

Cumulative impacts of the Proposed Action and its alternatives are presented below by environmental resource topic. The significance criteria that were used to evaluate project impacts in **Chapter 3.0** were also used to evaluate cumulative impacts. The discussion of the Proposed Action's cumulative impact is followed by a summary discussion identifying whether the cumulative impacts of the alternatives would be the same, greater, or lesser than those of the Proposed Action. As appropriate, mitigation measures are identified for significant cumulative impacts.

4.3.1 Biological Resources

Direct and Indirect Impacts of the Proposed Action

Section 3.4, Biological Resources, presents the Proposed Action's direct and indirect impacts on biological resources at the project site and in its vicinity. The analysis addresses the Proposed Action's impacts on wetlands, other sensitive natural communities, special-status plant and wildlife species, and wildlife corridors. The Proposed Action would result in the filling of wetlands and direct and indirect effects on vernal pool crustacean habitat. Given past and reasonably foreseeable losses of wetland/vernal pool habitat in the region, the effects of the Proposed Action would have the potential to cumulate with other losses in the region. In addition, the Proposed Action would affect wildlife movement by fragmenting open space habitat. The obstruction of wildlife habitat throughout the region could also result in cumulative effects on wildlife. Additionally, the Proposed Action would remove grassland habitat which is used for foraging by protected raptors and other birds, including Swainson's hawk.

Other biological resource impacts of the Proposed Action would not have the potential to cumulate and result in substantial adverse cumulative impacts. For instance, impacts to western spadefoot toad would be limited to potential construction-phase losses that would be minimized by **Mitigation Measure BIO-6**.

Similarly, construction-phase effects on protected raptor species and nesting birds would be minimized by the implementation of **Mitigation Measure BIO-7**. The Proposed Action would not have the potential to affect giant garter snake, Valley Elderberry Longhorn Beetle, special-status bats, or fish species. As these impacts would not have the potential to cumulate, they are not analyzed below.

Current Status of the Resource

Central Valley Vernal Pools

The Central Valley of California encompasses an area of more than 13 million acres (5 million hectares). According to Holland, the Central Valley encompassed up to 7 million acres (3 million hectares) of vernal pool landscapes in the early 1800s (Holland 2009). However, according to a study by Frayer, the seasonal wetlands of the Central Valley totaled about 4 million acres (2 million hectares) in the 1850s (Frayer et a. 1989). Through the 1800s, these landscapes were destroyed or fragmented by conversion to agriculture, mineral extraction, and water conveyance and storage projects. Between the 1930s and 1970s, agricultural conversion and urbanization of the landscape further reduced the habitat (Frayer et al. 1989).

Based on aerial photographs of the Central Valley taken over a period from 1976 to 1995, with most taken between 1982 and 1992, Holland noted that only 995,000 acres (403,000 hectares) of vernal pool habitat was left in the Central Valley in 1997. This represents an 87 percent reduction in the original habitat acreage (Holland 2009).

According to the USFWS, from 1992 to 1998, 125,591 acres (50,824 hectares) of grazing land were converted to other agricultural uses in the Central Valley (USFWS 2005). It is likely that much of this land supported vernal pools.

Conversion of vernal pool habitats to intensive agricultural uses continues to contribute to the decline of vernal pools. In recent years, the habitats have also been destroyed as a result of urban development, including residential, commercial, and industrial projects, and infrastructure associated with urbanization (USFWS 2005). As of 2005, the vernal pool habitat in the Central Valley was reduced further to 896,000 acres (363,000 hectares) of remaining habitat (Holland 2009). The amount of loss over this period of time was not distributed evenly across Central Valley. For example, Merced County lost 6,100 acres (2,500 hectares) between 1986 and 1997, and an additional 18,000 acres (7,300 hectares) of habitat between 1997 and 2005. Placer County lost 10,440 acres (4,225 hectares) between 1994 and 1997, and an additional 6,600 acres (2,670 hectares) of habitat between 1997 and 2005. On the other hand, Mariposa County did not have any vernal pool habitat losses in this timeframe (Holland 2009).

According to Holland, the majority (81 percent) of vernal pool grasslands were lost because of conversion of range land to agricultural land, which is typically outside of the normal regulatory processes, that apply to other land use conversions (urban, commercial, infrastructure, and industrial) under both federal and state laws. Therefore, the vernal pool losses associated with converting grazing land to agricultural land are mostly unmitigated (AECOM 2009). Little to no vernal pool habitat has been created or preserved to compensate for these losses due to agricultural conversions (Holland 2009).

Study Area Vernal Pool Habitat and Wetlands

As noted earlier, according to Holland, Placer County lost 10,440 acres (4,224 hectares) between 1994 and 1997 and an additional 6,600 acres (2,670 hectares) of vernal pool habitat between 1997 and 2005 (Holland 2009). The change in vernal pool grassland habitat within the study area is shown on **Figure 4.0-2, Converted Vernal Pool Grassland in Cumulative Study Area Circa 2011**. The graphic shows the vernal pool grassland areas that had been converted by 1970, with about 8,000 acres (3,000 hectares) (62 percent) converted by agricultural uses and about 5,000 acres (2,000 hectares) (38 percent) due to urban development. The graphic also shows vernal pool grassland areas that were converted between 1970 and 2011, with about 31,000 acres (13,000 hectares) due to agricultural conversions and about 29,000 acres (12,000 hectares) due to urban development. During this timeframe, approximately 9,400 acres (3,800 hectares) of vernal pool grassland habitat within the study area was placed in preserves or conservation areas.

Between approximately 1990 and 2010, 252 projects were permitted by the USACE in the study area. Of these permitted projects, 230 permits contained complete data regarding impacts and mitigation that the USACE used to estimate the magnitude of wetland impacts within the study area. The 230 permits included 27 individual permits, 190 nationwide permits, one regional general permit, and eight letters of permission. **Table 4.0-1, Study Area Wetland Impacts and Mitigation (in Acres) based on USACE Permits Issued since 1990,** below presents the acres of wetlands filled pursuant to the development authorized by these permits, as well as the mitigation to compensate for the filling of wetlands. The permits authorized the fill of about 438.93 acres (177.63 hectares) of wetlands. This included approximately 148 acres (60 hectares) (44 percent of total) of vernal pools and 291 acres (118 hectares) (66 percent) of Other Waters of the US. The projects authorized by the permits provided various forms of mitigation, which included on-site preservation, creation, and restoration, payment towards the National Fish and Wildlife Fund, purchase of mitigation credits in study area mitigation banks, and purchase of mitigation credits in mitigation banks outside the study area. As **Table 4.0-1** shows, about 1,254 acres (507 hectares) of compensatory mitigation were required under the permits issued. In general, the USACE required compensatory mitigation, including preservation, for vernal pool losses at an average rate of 3.15 acres (1.27 hectares) for every acre filled whereas filling of other waters of the US was compensated at an average rate of about 2.71 acres (1.1 hectares) for every acre filled. About 93 percent of the mitigation was provided within the study area and 7 percent outside the study area.

Table 4.0-1
Wetland Impacts and Mitigation (in Acres) based on Recent Permits Issued by the USACE in Study Area

Wetland Type	Total Impact	Total Mitigation	On-Site Mitigation			Mitigation Banks within Study Area		Mitigation Banks Outside of Study Area[a]	
			Creation	Restored/ Enhanced	Preserved	Creation	Preservation	Creation	Preservation
Vernal Pools	147.55[b]	465.24	71.33	0	76.41	121.05	132.09	16.35	48.01
Other Waters of US	291.38[c]	788.69	180.30	13.95[d]	296.36	231.68	39.95	26.45	0
Total	**438.93**	**1,253.93**	**251.63**	**13.95**	**372.77**	**352.73**	**172.04**	**42.8**	**48.01**
Total Delineated	1,099.51								

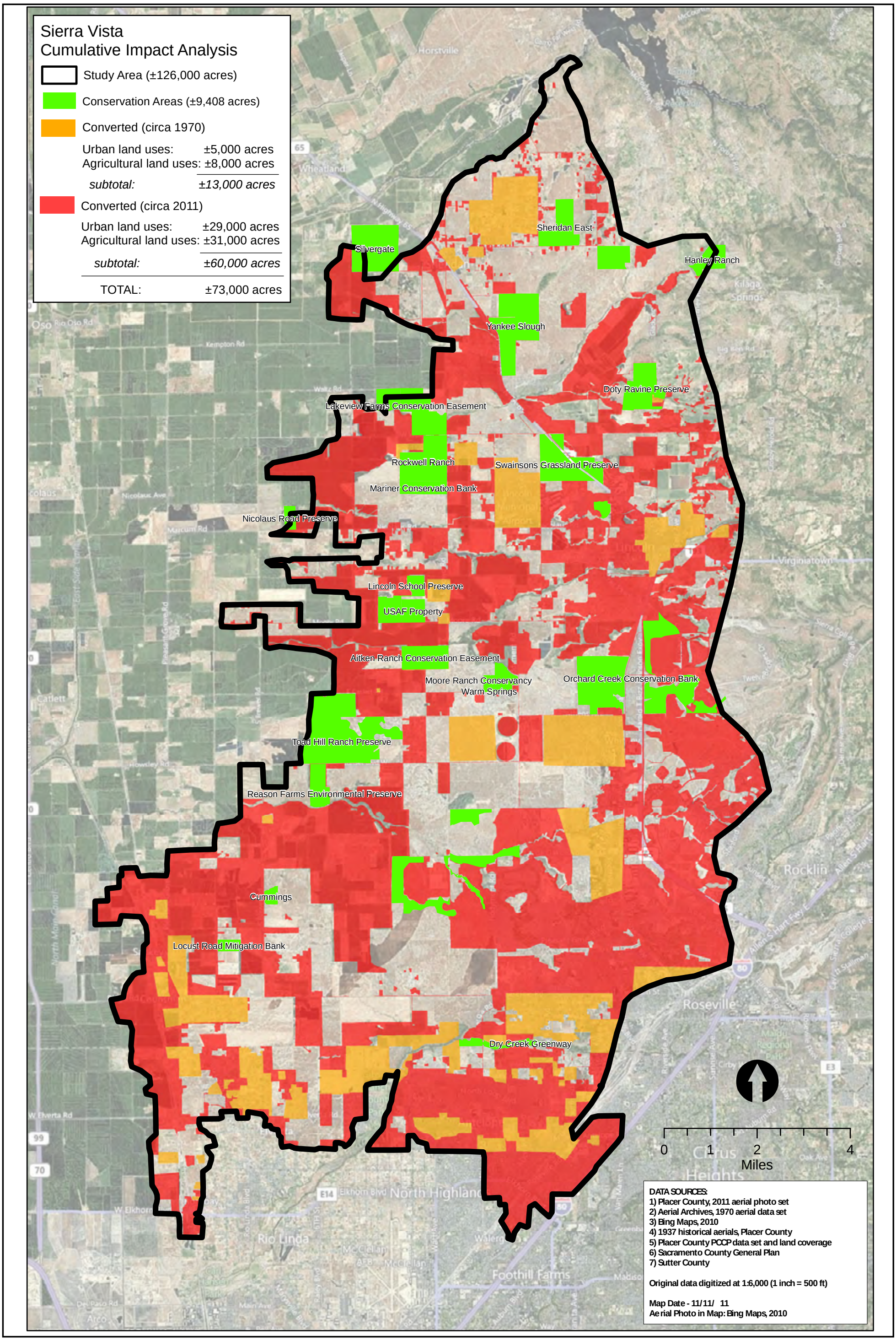
Note:

[a] *Includes mitigation sites that are in unknown locations*

[b] *Total impact does not include 0.87 acre of temporary impact to vernal pools.*

[c] *Total impact does not include 13.79 acres of temporary impact to other waters of the US.*

[d] *Includes 11.9 acres of restored and 2.05 acres of enhanced wetlands*



SOURCE: Salix Consulting – 2011

FIGURE **4.0-2**

Converted Vernal Pool Grassland in Cumulative Study Area Circa 2011

Other Present and Reasonably Foreseeable Future Actions and Projects

Based on the permit applications that are on file with the USACE and development projects that have received approval from the local jurisdictions, the projects listed in **Table 4.0-2, Near-term Reasonably Foreseeable Actions in the Study Area**, are considered present and reasonably foreseeable future actions and projects.

Table 4.0-2
Present and Reasonably Foreseeable Actions in the Study Area

Project	Total Vernal Pools and Other Waters of the US * (acres)	Estimated Impacts** (acres)
Fiddyment Road Widening[a]	0.44	0.44
Amoruso Specific Plan	ND	ND
Creekview Specific Plan[b]	33.83	14.17
Regional University Specific Plan[c]	85.28	18.00
Placer Vineyards Specific Plan[d]	177.00	119.00
Riolo Vineyards Specific Plan[e]	12.58	1.17
Placer Parkway Alternative 5[f]	152.00	ND
Reason Farms Retention[g]	71.44	0.75
Westbrook Specific Plan[h]	12.55	9.56
Elverta Specific Plan[i]	36.40	~36.40
Sutter Pointe Specific Plan[j]	70.00	ND

Note: ND – not determined

a. Department of the Army Permit SPK-2010-00735. August 5, 2011. (note: these impacts are permitted for fill)

b. Granite Bay Development II, LLC. 30 November 2010. Biological Resources Assessment for the 560-Acre Creekview Specific Plan. Prepared by North Fork Associates.

c. Placer County. December 2007. Draft EIR Regional University Specific Plan. Prepared by PBS&J.

d ECORP Consulting, 2012.

e. Placer County. January 2008. Draft EIR Riolo Vineyards Specific Plan. Prepared by URS.

f. Placer County. June 2007. Draft EIR Placer Parkway. Prepared by URS. (note: Alternative 5 was determined to be the preferred alternative)

g. City of Roseville. 16 October 2002. Draft EIR for the City of Roseville Retention Basin Project. Prepared by URS.

h DA permit application for Westbrook Specific Plan

i. Sacramento County. 2007. Elverta Specific Plan Final EIR.

j. Measure M Group. 10 September 2007. Wetland Delineation for Sutter Pointe Specific Plan. Prepared by ECORP.

* *Jurisdictional waters of the US*

** *On-site impacts, not yet approved by USACE*

Placer County's population is expected to increase by 270,837 people from 2005 to reach a total of 570,709 by 2035 (SACOG 2008) and increase by 484,000 people from 2007 to reach a total of 811,000 by 2060 (Hausrath Economics Group 2008). Most of this growth is expected to occur in the cities and unincorporated areas of western Placer County. The majority of the population and employment growth requires land for urban/suburban residential, commercial, office and industrial uses, and associated infrastructure and public support facilities (e.g., wastewater treatment plants, libraries, landfills, etc.). Based on plans and proposals for development in the cities and the unincorporated areas and on planning level assumptions about development density, an estimated 68,000 acres (28,000 hectares) of land conversion would accommodate this growth, of which 57,000 acres (23,000 hectares) would be in unincorporated Placer County and Lincoln. The remainder would be in the cities of Auburn, Loomis, Rocklin, and Roseville (PCCP 2011). According to the PCCP, the far western portions of Placer County are expected to be preserved.

As explained above, the Sacramento County 2030 General Plan identifies some growth areas to the south of the Placer County southern boundary, within the study area. The area identified for growth is designated for low-density residential uses. The remaining areas within the Sacramento County portion of the study area are designated for agricultural uses, so would not likely be developed.

The study area also includes a portion of Sutter County. With respect to this area, the County General Plan designates most of the area for agricultural and open space uses and a portion of it for development of a new town (Sutter Pointe Specific Plan).

Figure 4.0-3, Converted Vernal Pool Grassland in Cumulative Study Area Circa 2060, shows the additional areas of vernal pool grassland habitat within the study area that are anticipated to be converted between 2010 and 2060 based on the projected growth in the area as reported in the PCCP and other information. As shown in this figure, approximately 19,000 acres (7,700 hectares) of additional potential habitat would be converted if the projected growth occurs in the study area.

Significance Thresholds

The contribution of the Proposed Action or an alternative to a cumulative impact would be considered significant if the Proposed Action or an alternative would:

- Result in a net loss of the Waters of the US;
- Result in an unmitigated loss of vernal pool grassland habitat; or
- Result in an unmitigated loss of wildlife foraging and movement habitat.

Sierra Vista
Cumulative Impact Analysis

Study Area (±126,000 acres)

Conservation Areas (±9,408 acres)

Converted (circa 2011)

Urban land uses:	±34,000 acres
Agricultural land uses:	±39,000 acres
subtotal:	*±73,000 acres*

Estimated Converted (circa 2060)

All land uses:	±19,000 acres
TOTAL:	±92,000 acres

Silvergate
Sheridan East
Hanley Ranch
Yankee Slough
Doty Ravine Preserve
Lakeview Farms Conservation Easement
Rockwell Ranch
Swainsons Grassland Preserve
Mariner Conservation Bank
Nicolaus Road Preserve
Lincoln School Preserve
USAF Property
Aitken Ranch Conservation Easement
Moore Ranch Conservancy
Warm Springs
Orchard Creek Conservation Bank
Toad Hill Ranch Preserve
Reason Farms Environmental Preserve
Cummings
Locust Road Mitigation Bank
Dry Creek Greenway

0 1.25 2.5 5
Miles

DATA SOURCES:
1) Placer County, 2011 aerial photo set
2) Aerial Archives, 1970 aerial data set
3) Bing Maps, 2010
4) 1937 historical aerials, Placer County
5) Placer County PCCP data set and land coverage
6) Sacramento County General Plan
7) Sutter County

Original data digitized at 1:6,000 (1 inch = 500 ft)

Map Date - 11/11/ 11
Aerial Photo in Map: Bing Maps, 2010

SOURCE: Salix Consulting – 2011

FIGURE **4.0-3**

Converted Vernal Pool Grassland in Cumulative Study Area Circa 2060

1061-001•03/12

Cumulative Impact BIO-1 Loss of Wetlands

Proposed Action

Agricultural practices and conversions, urban development, and infrastructure development have resulted in a cumulative loss of wetlands, including vernal pools, in the study area. Future growth is anticipated to further add to this cumulative impact and the Proposed Action would contribute to this impact by filling about 25 acres (10 hectares) of vernal pools and other waters of the US. Compliance with the USACE's regulatory requirements will reduce the Proposed Action's contribution to the cumulative impact to **less than significant**.

As noted earlier, conversion of grasslands with embedded vernal pools to intensive agricultural uses has contributed to the decline of vernal pools and other wetlands in the study area. Data on acres of wetlands filled by agricultural activities not subject to the USACE's regulatory program are not available. However, data on fills permitted by the USACE are available and as noted above, based on permits issued by the USACE between 1990 and 2010, the USACE authorized the filling of about 438.93 acres (177.63 hectares) of wetlands in the study area. This included approximately 148 acres (60 hectares) (44 percent of total) of vernal pools and 291 acres (118 hectares) (66 percent) of other waters of the US.

Future growth is anticipated to further add to this cumulative impact. As shown in **Table 4.0-2**, foreseeable projects subject to the USACE regulatory program, if approved as proposed, could potentially result in the filling of approximately 200 acres (82 hectares) of wetlands. The Proposed Action would also contribute to the cumulative loss of wetlands in the study area by filling approximately 25 acres (10 hectares) of wetlands and other waters of the US, including vernal pools, seasonal wetlands and seasonal wetland swales, seeps, drainage channels, ditches, and ponds.

However, all new urban and infrastructure development would be subject to the regulatory and permitting requirements of the USACE, the US Fish and Wildlife Service, the State Department of Fish and Game, and the Regional Water Quality Control Board. Projects subject to these requirements must demonstrate that mitigation for loss of wetland habitats would result in no net loss of wetland function and values and that mitigation would be sufficient to ensure that adverse impacts would not occur to special status species that might be affected by filling of wetland habitat. In order to comply with the regulatory requirements, as described under **Impact BIO-1**, the Applicants have proposed mitigation that provides for preservation of 13.70 acres (5.54 hectares) of wetlands and other waters of the US and construction of 28.24 acres (11.43 hectares) of wetlands on the project site. In addition, the Applicants have proposed to construct or secure creation/restoration credits for 7.98 acres (3.23 hectares) of constructed vernal pools and preservation credits for 14.93 acres (6.04 hectares) of vernal pools from an approved mitigation bank in western Placer County within the bank's approved service

area. Based on the Applicant's proposed mitigation, the vernal pool compensatory mitigation ratio, including preservation, for the Proposed Action would be 3.8:1 and for other waters of the US, the mitigation ratio would be 2.4:1.

Because all development projects, including the Proposed Action, would comply with the no net loss policy and, to the extent there are small losses of wetlands that fall under nationwide permits and are not compensated by replacement wetlands, such small losses would not represent a substantial cumulative loss of wetlands. As explained earlier, the USACE required approximately 1,254 acres (507 hectares) of compensatory mitigation for projects within the study area to mitigate the loss of 438.93 acres (177.63 hectares) of wetlands in the study area since 1990. As **Table 4.0-1** shows, USACE required compensatory mitigation of vernal pool losses at the rate of 3.15 acres for every acre (3.15 hectares for every hectare) filled, and for losses of other non-vernal pool waters of the US at the rate of 2.71 acres for every acre (2.71 hectares for every hectare) filled. For losses through the Department of the Army permitting program, any cumulative effect on wetlands and vernal pools would be expected to be less than significant, and the Proposed Action's contribution would be rendered **less than significant** with the implementation of **Mitigation Measure BIO-1a** which would ensure compliance with the USACE requirements for mitigation of wetland impacts. In addition, the USACE will impose **Mitigation Measure CUM BIO-1** on future development in the study area to further minimize loss of wetlands and vernal pools.

No Action Alt. The No Action Alternative would not result in filling of any wetlands on the project site because filling of the waters of the US would be avoided by design. Therefore, this alternative would not contribute to the cumulative impact on wetlands, and no mitigation is required.

Alts. 1, 2, 3 & 4 Although the acreage of wetlands filled under each alternative varies, Alternatives 1, 2, 3, and 4 would result in the loss of similar types of wetlands and vernal pools. The alternatives would therefore also contribute to the cumulative impact on wetlands. However, as with the Proposed Action, development under any of the alternatives would be required to comply with the federal and state regulatory programs for the protection of wetlands and would implement **Mitigation Measure BIO-1b** to provide compensatory mitigation at ratios acceptable to the USACE for wetland impacts. Therefore, the contribution of any of the alternatives to any cumulative effect on wetlands and vernal pools would be rendered **less than significant**. In addition, the USACE will impose **Mitigation Measure CUM BIO-1** on future development in the study area to further minimize loss of wetlands and vernal pools.

Mitigation Measure CUM BIO-1 Wetland Compensatory Mitigation
(*Applicability – All future development in the Study Area)*

For development and infrastructure projects proposed in the study area, the USACE will, in general, require greater than 1 acre of mitigation for each acre of aquatic resources lost for all future losses authorized under Department of the Army permits. The USACE will factor into its mitigation requirements the risk of mitigation failure or uncertainty of success and the temporal loss of function.

Cumulative Impact BIO-2 Loss of Vernal Pool Grassland Habitat

Proposed Action

Cumulative development in the study area has resulted in the conversion of a substantial amount of vernal pool grassland habitat to agricultural, rural residential, urban and infrastructure land uses. Future growth is anticipated to further add to this cumulative impact and the Proposed Action would contribute to this impact by developing about 1,600 acres (647 hectares) of vernal pool grassland habitat. However with mitigation, the Proposed Action's contribution to this cumulative impact would be rendered **less than significant**.

As described above, substantial amount of vernal pool grassland habitat in the study area has already been removed in conjunction with past agricultural practices, urban development, and infrastructure. As of 2011, approximately 73,000 acres (30,000 hectares) of potential vernal pool grassland habitat in the study area had been converted although about 9,400 acres (3,800 hectares) of this habitat was put in preserves within the study area between 1970 and 2011. Based on growth projected for the City of Lincoln and unincorporated western Placer County over the next 50 years, urban and rural development and major infrastructure projects are expected to result in the elimination, loss, or modification of approximately 12,000 acres (4,900 hectares) of vernal pool habitat (TRA Environmental Sciences 2011). In addition, reasonably foreseeable future development within the City of Roseville and its sphere of influence and in the Sutter and Sacramento County portions of the study area is anticipated to result in additional losses. **Figure 4.0-3** shows the vernal pool grassland habitat conversions projected to occur through 2060 based on projected growth in the study area. The figure is a generalized representation of the resource and is largely based on the projections of land conversions developed for western Placer County and Lincoln under the PCCP, supplemented with other data for the City of Roseville, as well as with available data for portions of the study area that are in Sutter and Sacramento counties. As the graphic shows, an estimated 19,000 acres (7,700 hectares) of vernal pool grassland areas are anticipated to be converted over the next 50 years. This includes approximately 1,600 acres (647 hectares) of vernal pool grassland habitat that exists on the project site. More specifically, the Proposed Action would result in the loss of about 11.57 acres (4.7 hectares) of crustacean habitat on site and about 4.0 acres (1.6 hectares) of crustacean habitat off site, for a total of about 15.57 acres (6.3 hectares), as well as about 1,600 acres

(650 hectares) of grassland habitat.

Based on the historical losses of vernal pool grassland habitat and the fact that vernal pool grassland habitat losses due to agricultural conversions would continue unmitigated, the USACE has determined that the cumulative impact on vernal pool habitat within the study area would be significant. By converting about 1,600 acres (647 hectares) of grassland habitat, including about 15.57 acres (6.3 hectares) of crustacean habitat, the Proposed Action would contribute to this impact.

As stated above, all new development, including the Proposed Action, would be subject to the regulatory and permitting requirements of the USACE, the US Fish and Wildlife Service, the State Department of Fish and Game, and the Regional Water Quality Control Board. Projects subject to these requirements must demonstrate that mitigation for loss of wetland habitats would result in no net loss of wetland functions and values and that mitigation would be sufficient to ensure that adverse impacts would not occur to special status species that might be affected by filling of wetland habitat. Specifically, **Mitigation Measures BIO-1** and **BIO-2** would reduce the Proposed Action's effects on waters of the US, including vernal pools and the effects on listed crustacean habitat to **less than significant**. Furthermore, as part of the mitigation for wetland impacts and to address the Proposed Action's impact on state special-status species foraging habitat, the Applicants will conserve an equivalent acreage of grazing land or farmland elsewhere in the County, which would also help preserve vernal pool grasslands within the study area. With the implementation of these mitigation measures, the Proposed Action's contribution to the cumulative impact on vernal pool grassland habitat would be rendered **less than significant.**

Because all development projects would comply with the no net loss policy and would compensate for the filling of crustacean habitat, the cumulative impact on crustacean habitat would be reduced to less than significant. In addition, the USACE will impose **Mitigation Measure CUM BIO-1** on future development in the study area to minimize loss of wetlands and vernal pools. With respect to loss of vernal pool grassland habitat due to other reasonably foreseeable future projects, **Mitigation Measure CUM BIO-2** would be implemented by the USACE to minimize the effect to **less than significant**.

No Action Alt.

The No Action Alternative would not result in filling of any wetlands on the project site and therefore would avoid the direct take of vernal pool crustacean species. However, the No Action Alternative would indirectly affect the quality of vernal pool habitat by removing the grassland areas and developing upland areas that discharge into vernal pools and wetlands. Therefore, the alternative would contribute to the cumulative loss of vernal pool grassland habitat in the study area. **Mitigation Measure BIO-2** would reduce the No Action Alternative's effects on listed crustacean habitat to less than significant. Furthermore, as part of the vernal pool mitigation and to address the alternative's impact on state special status species foraging habitat, the Applicants would be required to

conserve an equivalent acreage of grazing or farmlands elsewhere in the County which would help preserve vernal pool grasslands within the study area. Therefore, with the implementation of the mitigation measures, the No Action Alternative's contribution to the cumulative impact on vernal pool grassland habitat would be rendered **less than significant.**

With respect to other reasonably foreseeable future projects, implementation of **Mitigation Measure CUM BIO-1** and **Mitigation Measure CUM BIO-2** would be required to minimize the effect to **less than significant**.

Alts. 1, 2, 3 & 4 Although the acreage of open space preserved on the site varies under each on-site alternative, Alternatives 1, 2, 3, and 4 would nonetheless result in the loss of vernal pool grassland habitat. Therefore, the alternatives would contribute to a **significant** cumulative impact on vernal pool grassland habitat. However, the effects of the alternatives would be reduced to less than significant by the same mitigation measures listed above under the Proposed Action.

With respect to other reasonably foreseeable future projects, implementation of **Mitigation Measure CUM BIO-1** and **Mitigation Measure CUM BIO-2** would be required to minimize the effect to **less than significant**.

Mitigation Measure CUM BIO-2 Vernal Pool Grassland Habitat Mitigation
(*Applicability – All future development in the Study Area)*

The USACE will work with the study area cities and Placer County to encourage regional and local planning efforts, such as the SACOG Blueprint and the proposed PCCP, that are designed to focus and concentrate growth in certain portions of the study area, minimize future loss of wetlands and vernal pool grassland habitat within the study area, and compensate for unavoidable losses.

Cumulative Impact BIO-3 Effects on Wildlife Foraging and Movement Habitat

Proposed Action Cumulative development has resulted in the conversion and fragmentation of a substantial amount of natural habitat in the study area. As a result, areas available to wildlife for foraging and movement have been reduced and fragmented. Future growth, including the Proposed Action, is anticipated to further add to this cumulative impact. Mitigation is proposed in this Draft EIS to reduce the Proposed Action's contribution to **less than significant**.

As noted in **Cumulative Impact BIO-2** above, approximately 12,000 acres (4,900 hectares) of habitat would be lost due to future development within the Placer County portion of the study area. Additional losses, estimated at about 7,000 acres (3,000 hectares) of habitat, would occur in association with future projects in Sutter and Sacramento County portions of the study area and with future projects within the City of Roseville or its sphere of influence.

The Proposed Action would develop the project site with urban uses and infrastructure and in conjunction with that development remove about 1,600 acres (650 hectares) of foraging and movement habitat for wildlife species. The combined effect of past, current and future projects, including the Proposed Action, on wildlife foraging and movement habitat is considered a **significant** cumulative effect.

However, the loss of grassland habitat on the project site (which also represents Swainson's hawk foraging habitat) would be compensated by preserving grassland habitat at the CDFG-specified ratios. In addition, **Mitigation Measure BIO-1** (vernal pool preservation and creation credits purchased for the Proposed Action's wetland impacts) would also preserve uplands that support grassland habitat, and the implementation of **Mitigation Measure BIO-9** would ensure that wildlife movement within the open space corridors is not obstructed, and that stream habitat that is disturbed during construction is restored. Therefore, with mitigation, the Proposed Action's contribution to the cumulative impact would be rendered **less than significant**.

It is reasonable to assume that other future projects would also be required to reduce their individual impacts as part of their environmental review process and permitting. However, despite these measures, some reduction in wildlife habitat would still occur as a result of cumulative development. **Mitigation Measure CUM BIO-2** would be implemented to address this impact and reduce it to **less than significant**.

No Action Alt. The No Action Alternative would result in reduced development on the project site. Therefore, although the contribution would be smaller, this alternative would still contribute to the cumulative impact and the same mitigation measures, including **Mitigation Measure CUM BIO-2** would be required to mitigate the effect to **less than significant**.

Alts. 1, 2, 3 & 4 Alternatives 1, 2, 3, and 4, like the Proposed Action, would result in the loss of grassland areas and movement habitat on the project site and thereby contribute to the cumulative impact. The same mitigation measures, including **Mitigation Measure CUM BIO-2,** would be required, which would reduce the effect to **less than significant**.

4.3.2 Aesthetics

Direct and Indirect Impacts of the Proposed Action

Section 3.1, Aesthetics, presents the Proposed Action's direct and indirect impacts on visual resources at the project site and in its vicinity. The Proposed Action would have a significant effect on scenic vistas and visual character by altering views of open rangeland, foothills, and Sierra Nevada, and by converting undeveloped rangeland to urban development. No feasible mitigation measures are available to fully mitigate these effects. The Proposed Action would also result in substantial effects from new sources of light and glare. Implementation of **Mitigation Measure AES-4a** through **4d** is proposed to reduce this

effect. As the effects of the Proposed Action on scenic vistas, visual character, and light and glare could cumulate with the effects of other projects in the vicinity, those are discussed below. The Proposed Action will not damage scenic resources and therefore has no potential to contribute to cumulative effects on scenic resources.

Current Status of the Resource

The project site is located in the western portion of the City of Roseville. At the present time, the area to the east of Fiddyment Road across from the project site is already developed with residential subdivisions. Residential subdivisions also exist to the north of the project site. Areas on both sides of Baseline Road west of Fiddyment Road are currently sparsely or not developed and appear as undeveloped range land. No prominent natural features are located in the vicinity of the project site. Prominent man-made features in the vicinity of the project site include the Western Area Power Authority (WAPA) corridor located within the project site (City of Roseville 2010a).

Significance Thresholds

The contribution of the Proposed Action or an alternative to a cumulative impact would be considered significant if the Proposed Action or an alternative would:

- Result in an unmitigated substantial change in the visual character of the study area or an unmitigated substantial increase in light and glare.

Cumulative Impact AES-1 Effect on Visual Resources

Proposed Action

The Proposed Action would have a **significant** cumulative effect on scenic vistas and the visual character of the project vicinity by altering views of open rangeland, foothills, and Sierra Nevada, and by converting undeveloped rangeland to urban development as viewed from Fiddyment and Baseline Roads.

With the development of both the Proposed Action and the Placer Vineyards Specific Plan area, the areas on both sides of Baseline Road west of Fiddyment Road would change from a primarily rural landscape to urban development, thereby permanently altering the visual character of the area, both under daytime conditions and at night. Similarly, the Proposed Action would place urban uses on the west side of Fiddyment Road and this development, in conjunction with existing development on the east side of Fiddyment Road, would alter the visual character of the area as viewed from that roadway. The Proposed Action and Placer Vineyards Specific Plan development would also introduce new sources of light and glare. Although the Proposed Action would be required to meet the City's Community-wide Design Guidelines, ensuring that proposed development would be visually compatible with surrounding development, it would, in conjunction with existing and other proposed projects, nonetheless permanently and substantially alter the environment. No feasible mitigation measures are available to fully address the effect. Therefore, the Proposed Action's contribution to the cumulative effect would be **significant**.

No Action Alt. The No Action Alternative would construct a smaller mixed-use development on the project site. The contribution of the No Action Alternative to cumulative effects on visual resources would be less than that of the Proposed Action. Based on the significance criteria listed above and for the same reasons presented for the Proposed Action, the alternative's contribution to the cumulative effect would be **significant**. No feasible mitigation measures are available to fully address the effect.

Alts. 1, 2, & 3 The cumulative contribution of each alternative (Alternatives 1, 2, and 3) to cumulative effects on aesthetics would be less than that of the Proposed Action as the amount of development under these alternatives would be reduced compared to the Proposed Action. However, based on the significance criteria listed above and for the same reasons presented for the Proposed Action, the contribution would be **significant**. No feasible mitigation measures are available to fully address the effect.

Alt. 4 Alternative 4 would construct a project broadly similar to the Proposed Action on the alternative site. The contribution of Alternative 4 to cumulative effects on aesthetics would be less to that of the Proposed Action, except that the development at the alternative site would be at a distance from existing development east of Fiddyment Road. Based on the significance criteria listed above and for the same reasons presented for the Proposed Action, the contribution would be **significant**. No feasible mitigation measures are available to fully address the effect.

4.3.3 Agricultural Resources

Direct and Indirect Impacts of the Proposed Action

Section 3.2, Agricultural Resources, presents the direct and indirect impacts of the Proposed Action on agricultural resources. The Proposed Action would result significant effects on agricultural resources from the conversion of grazing land and strawberry fields. Implementation of **Mitigation Measure AG-1,** which would preserve open space to compensate for the loss of agricultural lands, would be implemented to reduce this effect.

Current Status of the Resource

The loss of farmland is occurring throughout California, including in western Placer County. Since the Placer County General Plan was adopted in 1994, areas within the project vicinity have changed from being rural, undeveloped, or agricultural in nature to urban residential and commercial development. Similarly, lands in the City of Roseville that were at one time in agricultural uses have since been developed with urban uses. As discussed in **Section 3.2**, between 1992 and 2008, approximately 2,625 acres (1,062 hectares) of Prime Farmland in Placer County was converted to other uses. Sacramento and Sutter Counties lost approximately 20,048 acres (8,113 hectares) and 5,593 acres (2,263 hectares), respectively, of Prime Farmland during the same period (California Department of Conservation 1994 through 2008).

Significance Thresholds

The contribution of the Proposed Action or an alternative to a cumulative impact would be considered significant if the Proposed Action or an alternative would:

- Result in a substantial unmitigated loss of Important Farmland.

Cumulative Impact AG-1 Conversion of Important Farmland

Proposed Action Within western Placer County, a majority of agricultural land has been identified as Farmland of Local Importance and Grazing Land. The vast majority of the project site is designated as Farmland of Local Importance. The Proposed Action, in conjunction with other present and foreseeable future projects, would result in the conversion of agricultural land to non-agricultural uses. Because farmland is being lost to development throughout the region, the direct loss of farmland and agricultural productivity would be a significant cumulative impact. However, because the project site is not in active agricultural use, except for the limited area of strawberry fields, and because the Proposed Action includes **Mitigation Measure AG-1** which provides substantial off-site mitigation for conversion of agricultural land, its contribution to the cumulative impact would be rendered **less than significant**.

No Action Alt. This alternative would preserve somewhat more open space throughout the project site than the Proposed Action, so its contribution to cumulative loss of agricultural land would be reduced but the impact would still be significant. Based on the significance criteria listed above and for the same reasons presented for the Proposed Action, with implementation of **Mitigation Measure AG-1**, the contribution of this alternative to the cumulative impact would be rendered **less than significant**.

Alts. 1, 2, & 3 As all of these alternatives would develop less area on the project site as compared to the Proposed Action, the contribution of each of the alternatives to the loss of agricultural land would be less than the Proposed Action. Based on the significance criteria listed above and for the same reasons presented for the Proposed Action, with implementation of **Mitigation Measure AG-1** the contribution of Alternatives 1, 2, and 3 to the cumulative loss of agricultural land would be rendered **less than significant**.

Alt. 4 The cumulative contribution of Alternative 4 to loss of agricultural land would be greater than that of the Proposed Action. The Alternative 4 site contains significantly more lands that are designated Unique Farmland than the project site and are in active agricultural production. This alternative would also implement **Mitigation Measure AG-1**, which would reduce its contribution to the cumulative loss of agricultural land. However, based on the significance criteria listed above and because the Alternative 4 site contains high quality soils and is in rice production, its contribution to the cumulative impact would remain **significant and unavoidable**.

4.3.4 Air Quality

Direct and Indirect Impacts of the Proposed Action

Section 3.3, Air Quality, presents the direct and indirect impacts of the Proposed Action on air quality, including impacts from construction and operational emissions, carbon monoxide hot spots, and odors. The Proposed Action would have an adverse effect on air quality from construction that would be substantially reduced with implementation of **Mitigation Measure AQ-1,** although emissions of reactive organic gases (ROG) and particulate matter 10 microns in diameter or less (PM10) would remain significant. The Proposed Action would also have adverse effects related to criteria pollutant emissions generated during project occupancy and use. As these impacts would have the potential to cumulate, they are analyzed below.

The Proposed Action would result in less than significant effects related to exposure to toxic air contaminants and exposure to objectionable odors. Therefore it has a minimal potential to contribute to cumulative effects related to toxic air contaminant emissions and odors.

Current Status of the Resource

As discussed in **Section 3.3,** the Placer County portion of the Sacramento Valley Air Basin is under the jurisdiction of the Placer County Air Pollution Control District (Air District). At the present time, the Placer County portion of the Air Basin is designated as "severe" federal nonattainment for ozone (8-hour) and nonattainment for fine particulate matter (PM2.5). The Placer County portion of the Air Basin is also in nonattainment of the state standards of ozone (1-hour), ozone (8-hour), and respirable particulate matter (PM10). As discussed in detail in **Section 3.3,** the Air District has prepared attainment plans for the area in order to demonstrate achievement of the state and federal ambient air quality standards for ozone, PM10, and PM2.5. The County and City General Plans contain policies intended to improve air quality in the region.

Significance Thresholds

The contribution of the Proposed Action or an alternative to a cumulative impact would be considered significant if the Proposed Action or an alternative would:

- Result in substantial unmitigated emissions of air pollutants (ozone, PM10 and PM2.5) for which the Air Basin is in nonattainment.

Cumulative Impact AIR-1 Effects from Criteria Pollutant Emissions

Proposed Action

The Proposed Action would have a **less than significant** cumulative impact from construction emissions and CO concentrations but would have a **significant** cumulative impact due to operational emissions.

Construction Emissions

Cumulative development would result in multiple construction projects occurring at the same time, generating emissions from earthmoving activities, heavy equipment

operation, workers traveling to and from construction sites, and miscellaneous activities such as paving roadways and parking lots and painting of commercial/residential structures. The emissions from these activities could contain reactive organic gases, nitrogen oxides, and particulate matter in excess of significance thresholds.

Earthmoving activities could result in substantial fugitive dust (PM10) emissions, and would be likely to result in localized PM10 concentrations in excess of state and federal standards. A major portion of PM10 would settle on the construction site or its immediate vicinity, while a small fraction would contribute to regional ambient particulate concentrations. PM10 emissions associated with construction of the Proposed Action are estimated to exceed the Air District threshold of 82 lbs/day (37 kg/day), even with **Mitigation Measure AQ-1** which requires the implementation of dust control measures (Rimpo and Associates, Inc. 2009).

Exhaust emissions would be generated by construction equipment operations and construction employee vehicle trips. These emissions would include carbon monoxide (CO), ROG, nitrogen oxides (NO_X), sulfur dioxide (SO_2), and particulate matter. Painting and paving of roadways would primarily release ROG into the atmosphere. Exhaust emissions associated with construction of the Proposed Action are estimated to exceed Air District thresholds of 82 lbs/day for ROG and NO_X.

Although the Proposed Action would contribute to these cumulative impacts during the 15-30 year buildout of the site and the emissions would exceed the Air District thresholds for ROG and NO_X, as shown by the General Conformity analysis conducted for this project (see **subsection 3.3.6, General Conformity**), these emissions are accounted for in the State Implementation Plan (SIP) and together with all other emissions in the nonattainment area would not be likely to exceed the emissions budgets specified in the applicable SIP for the Sacramento Valley Air Basin. Therefore, the contribution of the construction phases of the Proposed Action's to the cumulative impact on air quality in the Air Basin would be **less than significant**.

Operational Emissions

The project site is located in an area that is designated non-attainment for ozone, PM10, and PM2.5. Vehicles, commercial operations, and some residential activities would generate ozone precursors contributing to the ozone problem within the Sacramento Valley Air Basin. Area sources, such as residential wood burning stoves and fireplaces, are substantial sources of particulate matter. Operational emissions from buildout of the Proposed Action are estimated to exceed Air District thresholds for ROG, NO_X, and PM10.

In order to bring the region into compliance with State and federal air pollutant standards, air districts use General Plans and similar planning documents to determine where and how future growth will occur within the region. When development occurs

that is not consistent with the intensity of development presented in a General Plan or if it was not previously accounted for, it is assumed that the emissions associated with that development are unaccounted for in the SIP, which could hinder the region's ability to come into compliance with State and federal air pollutant standards. Although many criteria air pollutants within the Sacramento Valley Air Basin were accounted for in the SIP, current growth forecasts for the Roseville area with approval of the Proposed Action would be higher than what was projected when the existing plans were prepared. Therefore, emissions associated with operation and occupancy of the Proposed Action and buildout of cumulative development would cause direct adverse effects to the region's ability to achieve compliance with air quality standards.

Compliance with the City's Transportation Systems Management Ordinance and implementation of **Mitigation Measure AQ-2**, which requires implementation of a number of measures to reduce vehicular traffic and energy use, would reduce the amount of emissions generated by the Proposed Action. The Proposed Action would also be subject to a variety of policies that would promote the use of alternative forms of transportation and pedestrian access to commercial and office uses within the project site. However, because the operational air emissions associated with the Proposed Action are not accounted for in regional air quality attainment plans, even with mitigation, the emissions would be considered **significant** and the Proposed Action would make a significant contribution to the cumulative impact on regional air quality.

CO Concentrations

Background CO concentrations in Roseville are low, and despite anticipated increases in traffic volumes, future roadside CO concentrations are expected to decrease from existing concentrations due to improved fuel combustion efficiency (City of Roseville 2010a). Therefore, the Proposed Action, in conjunction with buildout of reasonably foreseeable development in the area, would have a **less than significant** effect related to CO concentrations.

All Alts. All alternatives would result in some development on the project site or the Alternative 4 site. The intensity of development would be generally comparable to, or slightly less than, that under the Proposed Action, and the contribution of the alternatives to cumulative effects on air quality would be generally similar to that of the Proposed Action. Therefore despite mitigation, operational emissions from all alternatives would result in a significant contribution to the cumulative impact on air quality.

4.3.5 Cultural Resources

Direct and Indirect Impacts of the Proposed Action

The Proposed Action would potentially damage undiscovered historic properties or human remains during construction, though implementation of **Mitigation Measures CR-1a** and **CR-1b** would render the effect less than significant. As these impacts would have the potential to cumulate, they are analyzed below.

Current Status of the Resource

Section 3.6, Cultural Resources provides a description of regional prehistory, ethnography, and prehistoric and contact period archaeology, in addition to a description of regional history and the historic built environment. Loss of cultural resources in the project area due to previous ground disturbing activities is unquantifiable.

Significance Thresholds

The contribution of the Proposed Action or an alternative to a cumulative impact would be considered significant if the Proposed Action or an alternative would:

- Result in an unmitigated loss of significant prehistoric and historic resources.

Cumulative Impact CR-1 Damage to Historic Properties or Human Remains

Proposed Action

Development in the region could result in the damage or destruction of known archaeological and historical resources, as well as any existing undiscovered subsurface artifacts. The vicinity of Roseville is known to include both prehistoric and historic cultural resources. Although no evidence of prehistoric resources was discovered during field surveys of the project site, archaeological sites are located in the vicinity. Historic resources and prehistoric sites have been recorded within the Placer Vineyards site and the West Roseville Specific Plan area and could occur elsewhere in southwestern Placer County.

Numerous laws, regulations, and statues, at both the federal and state levels, seek to protect cultural resources. These would apply to development within the study area. In addition, the Roseville General Plan provides local policies for the protection of cultural resources from unnecessary impacts. These policies include inventory and evaluation processes and require consultation with qualified archaeologists in the event that previously undiscovered cultural materials are accidentally exposed. By ensuring that cultural resources discovered within the project site are properly recorded and handled, **Mitigation Measures CR-1a** and **CR-1b** would reduce the Proposed Action's contributions to cumulative cultural resource impacts to **less than significant**.

All Alts. The cumulative contribution of the alternatives to cumulative effects on cultural resources would be similar to that of the Proposed Action. Based on the significance criteria listed above and for the same reasons presented for the Proposed Action, the implementation of **Mitigation Measures CR-1a and CR-1b** for Alternatives 1 through 4 and **Mitigation Measure CR-1a** for the No Action Alternative would reduce the contribution of all alternatives to **less than significant**.

4.3.6 Hydrology and Water Quality

Direct and Indirect Impacts of the Proposed Action

As analyzed in **Section 3.10, Hydrology and Water Quality**, the Proposed Action would result in potentially adverse effects related to water quality, flooding, and groundwater. As these effects of the Proposed Action would have the potential to cumulate with similar impacts from other past, present and future actions in the Curry Creek watershed as well as the lower portion of Pleasant Grove Creek watershed, they are analyzed below. Other hydrology and water quality impacts analyzed in **Section 3.10** would not have the potential to cumulate and are not discussed below.

Current Status of the Resource

As discussed in **Section 3.10,** the Proposed Action is located in the Curry Creek watershed that drains an area of approximately 16.5 square miles, originating at an elevation of about 120 feet in Placer County and ultimately draining into the Pleasant Grove Canal. Pleasant Grove Canal in turn drains into Natomas Cross Canal, which discharges into the Sacramento River. Historic development within the Curry Creek watershed and the adjacent portion of the Pleasant Grove Creek watershed has increased the amount of impervious surfaces, increasing runoff discharged into both creeks and ultimately into Pleasant Grove Canal. A situation currently exists within Sutter County in the sump areas upstream of the Natomas Cross Canal, where flooding is known to occur when the Sacramento River rises above a flood stage of 37.0 feet (11.3 meters) at the Verona Gauge. This occurs as a result of the limited discharge capacity of the Natomas Cross Canal when the Sacramento River is flooding.

Curry Creek receives flows from several storm drains that capture runoff from urbanized areas to the east of the project site, and is listed as an impaired water body as a result of elevated levels of pyrethroids from the urban runoff. Curry Creek currently shows signs of degradation within the project site, which has likely been exacerbated by the lack of upstream hydromodification measures and historic agricultural practices that could have led to excessive erosion.

The project site is located in the North American subbasin of the Sacramento Valley groundwater basin. Total storage capacity in the subbasin is estimated at approximately 4.9 million acre-feet (maf) (604,000 hectare meters), and recent data suggest that withdrawals of up to 95,000–97,000 acre-feet per year (afy) (11,700-11,900 hectare meters per year) are within the basin's safe yield (Department of Water Resources 2006; City of Roseville 2009). The majority of groundwater production occurs in the northern portion of the subbasin. Groundwater recharge in the North American subbasin has been historically affected by

urbanization in places where soils are permeable (i.e., not characterized as hardpans or claypans) (City of Roseville 2010a).

Significance Thresholds

The contribution of the Proposed Action or an alternative to a cumulative impact would be considered significant if the Proposed Action or an alternative would:

- Contribute runoff to facilities susceptible to flooding;
- Release sediment and other pollutants such as to cause downstream water quality effects;
- Require groundwater withdrawal which, combined with other withdrawals, exceeds the safe yield of the aquifer; or
- Interfere substantially with groundwater recharge.

Cumulative Impact HYDRO-1 Flooding, Water Quality, and Groundwater

Proposed Action

Cumulative development in the study area, including the Proposed Action, would increase the amount of impervious surfaces, which would in turn generate increased storm water runoff and would have the potential to result in downstream flooding and water quality impacts in the Curry Creek watershed. Cumulative urban development would also have the potential to affect groundwater levels through potential reduction in recharge and from withdrawal of groundwater for consumptive use. For reasons presented below, the Proposed Action's contribution to these cumulative impacts would be **less than significant**.

Flooding

Storm water runoff produced by the Proposed Action would drain into Curry Creek and eventually into the Pleasant Grove Canal. Projects upstream and east of State Route 65 in Lincoln and Rocklin have constructed or have planned regional detention storage basins along Pleasant Grove Creek and its tributaries. City of Roseville General Plan Policy 6 and Placer County General Plan Policy 4.E.11 require that individual projects mitigate their direct contribution of increased surface water flows to minimize the potential for increased on- and off-site flooding (City of Roseville 2010b; Placer County 1994b). As described in **Section 3.10,** the City is planning a regional storm water retention basin at Reason Farms which is intended to detain flows until the waters in the Natomas Cross Canal recede. The regional retention basin will serve existing and future development in the Pleasant Grove Creek and Curry Creek watersheds. The regional retention facility, which is approved for construction, is anticipated to be constructed in year 2015 or after. The Proposed Action would contribute storm water mitigation fees that would go towards the construction of this regional storm water detention capacity at Reason Farms. Although storm water from SVSP would not be pumped up to this detention basin in Reason Farms, the facility has been designed to detain an equivalent volume of water that would be generated at the project site. The detention facility would detain the

equivalent volume of storm water (generated primarily by existing development in the watershed) and would allow the Proposed Action to discharge that volume into Pleasant Grove Canal and eventually Natomas Cross Canal. The regional facility may be used by not just projects in the City's jurisdiction but also projects in Lincoln, Rocklin, or unincorporated Placer County.

To the extent that future projects in these watersheds elect not to participate in the City's fee program for flood control via the regional detention facility, Placer County will require each project to provide on-site detention to avoid contributing flows that would exasperate the downstream flooding problem as described in the Stormwater Management Manual (Placer County 1994a). Three projects in unincorporated Placer County (Placer Vineyards, Regional University and Placer Parkway) incorporate on-site detention capacity and other measures to avoid downstream flooding (Placer County 2006; Placer County 2008; Placer County 2007). Therefore, increased runoff from cumulative development in the Curry Creek and Pleasant Grove Creek watersheds is not expected to result in adverse downstream flooding impacts. The contribution of the Proposed Action would be **less than significant.**

With respect to any localized cumulative effects on the reach of Curry Creek within the project site, the sizing of storm detention facilities within Curry Creek on the western side of the project site have been designed to take into consideration Placer Vineyards flows through the project site as part of the project. Therefore, cumulative flooding impacts to Curry Creek from increased runoff at the project site would be **less than significant**.

Water Quality

Development on the project site would drain into Curry Creek. Changes in water quality could occur as a result of project construction activities. Similarly, other urban development would also involve soil disturbing construction activities, such as vegetation removal, grading, and excavation. These soil disturbances would expose soil to wind and water-generated erosion. As previously described, sediment from erosion can have long and short-term water quality effects, including increased turbidity, which could result in adverse impacts on fish and wildlife habitat and the physical integrity of stream channels.

The City requires that erosion control plans be prepared and approved by the City to reduce water quality impacts during construction activities (Roseville Municipal Code Section 16.20.040 Grading plans). In addition, all construction projects that would disturb 1 acre or more would be required to comply with the applicable State General Permit (2009-0009-DWQ Construction General Permit) requirements for storm water runoff during construction which would reduce potential degradation of receiving water quality attributable to the Proposed Action as well as other development in the Curry

Creek watershed.

With respect to post-construction storm water runoff, all new development in the study area would be required to comply with National Pollutant Discharge Elimination System (NPDES) requirements related to post-construction runoff. In addition, the City's General Plan and Storm Water Quality Design Manual require that urban runoff measures, including Best Management Practices (BMPs), LID measures and buffer areas, be implemented as part of individual project development to protect water quality from pollutants in urban runoff. Similarly, new development located in unincorporated Placer County is subject to the County's Storm Water Management Plan requirements and is required to include storm water quality improvements and LID measures to reduce the volumetric increase in flows as well as improve water quality (Placer County 1994). As a result of existing regulations and local requirements, the Proposed Action's contribution to a cumulative impact on water quality from urban runoff would be **less than significant**.

Groundwater Use

The cumulative context for groundwater impacts is the North American River groundwater sub-basin that generally underlies western Placer County and northern Sacramento County. The sub basin is located within the Sacramento Valley Groundwater Basin. It includes a surface area of 548 square miles (1,429 square kilometers) (City of Roseville 2010a).

Urban growth in northern Sacramento County beginning in the 1950s increased the demand on groundwater such that the groundwater elevation trend along the Sacramento/Placer County line began to show a steady decline of 1 to 1.5 feet (0.3 to 0.46 meter) per year (City of Roseville 2010a). Groundwater elevations continued to decline at a relatively steady rate through the droughts of 1976 to 1977 and 1987 to 1992. The effect of the 1987 to 1992 droughts on groundwater elevations in most of the basin was however relatively minor; with the 1990 groundwater levels about 5 to 10 feet (1.52 to 3.05 meters) lower than the 1985 conditions (City of Roseville 2010a).

The regional groundwater management efforts are focused on controlling the fluctuations in groundwater levels to keep them within an acceptable range. The City of Roseville, the City of Lincoln, PCWA, and the California American Water Company have cooperatively developed the Western Placer County Groundwater Management Plan (WPCGMP). The overarching goal of the WPCGMP is to maintain the quality and ensure the long-term availability of groundwater to meet backup, emergency, and peak demands without adversely affecting other groundwater uses within the WPCGMP area. The Water Forum Agreement currently represents the most likely long-term plan for development of groundwater and surface water supplies in Placer and Sacramento counties, and it reflects projected land use and water demand throughout the two

counties in year 2030 as envisioned in current approved general plans (City of Roseville 2010a).

Groundwater is not used for consumptive uses in the City of Roseville under normal water conditions. It is used in dry years to supplement surface water supplies, and during peak times, to supplement pumping constraints. Including the groundwater needed to serve the Proposed Action, up to 6,695 afy (826 hectare-meters per year) of groundwater could be used to supplement City supplies. In addition, nearby Placer County projects could use groundwater in the short-term. However, because of the sustained recoveries of groundwater elevation since 1997 and the significant efforts to protect groundwater resources in the region, the cumulative impact on groundwater resources would not be substantial. The use of aquifer storage and recovery, which is an element of the groundwater management plan, would ensure that surplus water is injected in the groundwater basin to ensure no net decrease in groundwater levels. The contribution of the Proposed Action to a long-term net effect on groundwater resources is expected to be **less than significant**.

Groundwater Recharge

Development in the City of Roseville would result in the creation of new impervious surfaces by converting primarily undeveloped grazing land to urban uses. As discussed in **Section 3.10**, recharge occurs primarily along stream channels and through applied irrigation water. Furthermore, less than 5 percent of total recharge into the Sacramento Valley groundwater basin under natural conditions is attributable to Placer County (City of Roseville 2010a). This is because much of western Placer County consists of hydrologic group "d" soils, which are characterized by high runoff and low infiltration potential. Other areas of the City of Roseville and western Placer County are situated on soil and rock units similar to the project site, and do not have water intensive irrigation uses (City of Roseville 2010a). Given the low levels of recharge that occurs under existing conditions, the fact that the Proposed Action (and other foreseeable development in the area) would protect and maintain creek corridors where infiltration would continue to occur, and the fact that the Proposed Action (and all future development) would include LID measures to infiltrate runoff to the extent feasible, the contribution of the Proposed Action to a cumulative effect on recharge would be **less than significant**.

No Action Alt., Alts. 1, 2, & 3

The contribution of each of the alternatives to cumulative effects related to hydrology and water quality would be somewhat reduced compared to that of the Proposed Action due to the increased size of the areas placed in open space and increased stream buffers. Based on the significance criteria listed above and for the same reasons presented for the Proposed Action, of the contribution of all of these alternatives to the cumulative effects described above would be **less than significant**.

Alt. 4 The contribution of Alternative 4 to cumulative effects related to surface water hydrology and water quality would be similar to that of the Proposed Action. However, the development of Alternative 4 site with a mixed-use community would somewhat reduce groundwater recharge that occurs at this site because, currently, a large portion of the site (about 716 acres) is under rice fields that are irrigated. As this practice would no longer occur in the areas that are developed with urban uses, groundwater recharge would decrease. However, this decrease would be offset by the reduction in the amount of groundwater that is pumped to irrigate the fields. As noted under **Impact UTIL-2**, based on a rate of 6 acre-feet (0.74 hectare-meter) per year of irrigation water per acre of rice fields, it is estimated that about 4,300 acre-feet (530 hectare meters) of groundwater is pumped annually from the groundwater basin to irrigate the rice fields on this site. Therefore, overall, the development of the site is expected to benefit the groundwater basin. Based on the significance criteria listed above, the impact would be **less than significant.**

4.3.7 Noise

Identification of Direct and Indirect Impacts of the Proposed Action

As discussed in **Section 3.12, Noise**, construction of the Proposed Action would generate noise levels that could affect off-site sensitive receptors. This effect would be reduced by implementation of **Mitigation Measure NOISE-1**, though the effect would remain substantial. In addition, noise associated with traffic generated by the Proposed Action would impact sensitive receptors adjacent to area roadways. This effect is considered significant and would not be rendered less than significant by implementation of **Mitigation Measure NOISE-3a.** These effects are analyzed below to determine whether they would cumulate with the effects from other past, present and reasonably foreseeable future actions to result in significant adverse effects. All other noise impacts of the Proposed Action would be limited to the project site and would not cumulate with noise from other cumulative projects.

Current Status of the Resource

Urban and rural development in the study area has resulted in increased ambient noise levels from the addition of mobile and stationary noise sources associated with these land uses. Vehicular traffic is the predominant source of noise in the area. As discussed in **Section 3.12,** ambient noise levels already exceed or nearly exceed the City's thresholds west of Fiddyment Road and north of Baseline Road.

Significance Thresholds

The contribution of the Proposed Action or an alternative to a cumulative impact would be considered significant if the Proposed Action or an alternative would:

- Result in an unmitigated significant increase in noise levels that would exist under the No SVSP scenario.

Cumulative Impact NOISE-1 Construction and Operational Noise Effects

Proposed Action

Construction Noise

Noise impacts would result from operation of construction equipment and from noise generated by vehicular traffic traveling to and from a construction site. The magnitude of the impact would depend on the type of construction activity, the noise level associated with each piece of construction equipment, the duration of construction, availability of noise barriers, and the distance between the source of the noise and receptors. Properties located adjacent to construction sites would be affected temporarily; therefore short-term construction noise impacts are anticipated. Project residents could be affected by construction activities related to development under the West Roseville Specific Plan to the north, Placer Vineyards Specific Plan to the south, and the Regional University and Westbrook Specific Plan to the west.

It is unlikely that construction activities within the project site, West Roseville Specific Plan, Placer Vineyards, Westbrook, and Regional University would be close enough to a particular sensitive receptor to create a substantial combined noise level. Furthermore, construction within the West Roseville Specific Plan, Westbrook, and the project site would comply with the City Noise Ordinance. As discussed earlier, the construction of any project that occurs within the City would be limited to the hours of 7:00 AM and 7:00 PM Monday through Friday and 8:00 AM to 8:00 PM Saturday and Sunday. The County also limits construction to daytime hours, similar to the City. Also, any periods in which more than one project would be under construction in proximity to the same sensitive receptor would likely be very short, and would only occur during the hours mentioned above. For these reasons, the cumulative impact would **less than significant** and the contribution of the Proposed Action would be **less than significant**.

Stationary Source Noise

It is not expected that urban uses within the study area would be exposed to or generate, multiple sources of stationary noise that would be close enough to each other to exceed noise thresholds. The sources of noise within the project, and surrounding new developments such as Placer Vineyards, Westbrook, and Regional University, would include schools, parks, and commercial areas. No industrial or heavy manufacturing uses are proposed under the Proposed Action or any of the other foreseeable projects that could cumulate and affect a sensitive receptor. Therefore, there would be **no cumulative** noise impact from multiple stationary sources.

Traffic Noise

Section 3.12 presents the traffic noise impacts that would result in 2025 at the buildout of the Proposed Action. The 2025 noise analysis represents a cumulative noise analysis as it takes into account traffic from not just the Proposed Action but also other past, present

and reasonably foreseeable future development. That analysis shows that several roadways adjacent to proposed residential areas under the Proposed Action including Fiddyment Road, Westbrook Boulevard, Santucci Boulevard, and Baseline Road would have noise levels that exceed 60 decibels (dB) day night continuous noise level (Ldn). Depending on the distance to residences at these locations, the exterior noise levels could exceed City standards under 2025 conditions. This cumulative effect would be **significant**. **Mitigation Measure NOISE-3a** requires new development on the project site to include noise barriers, masonry walls, setbacks, and other feasible measures to reduce noise impacts in residential areas of the project site. With the implementation of this measure, the Proposed Action's contribution to this cumulative impact to on-site receptors would be rendered **less than significant**.

Similarly, cumulative traffic, including traffic associated with the Proposed Action, would increase ambient noise levels along off-site roadways and despite installation of noise barriers where feasible, it is unlikely that the significant noise impact would be eliminated at all affected locations off site. The cumulative impact on off-site receptors near major roadways would remain **significant** and the Proposed Action's contribution to the cumulative impact would be **significant**.

No Action Alt., Alts. 1, 2, 3

All of the on-site alternatives would develop the project site in a manner generally similar to the Proposed Action. The contribution of each of the on-site alternatives to cumulative effects related to construction and operational noise would be similar to that of the Proposed Action. Based on the significance criteria listed above and for the same reasons presented for the Proposed Action, the cumulative impact to on- and off-site receptors from traffic noise would be **significant**. However, contribution of each alternative to the cumulative impact on on-site receptors would be **less than significant** with mitigation while the contribution of each alternative to the cumulative impact to off-site receptors would be **significant** even after mitigation**.**

Cumulative impacts from construction noise would be **less than significant** and stationary noise sources would have **no** cumulative impact**.**

Alt. 4

Similar to the Proposed Action, construction activities would be limited to daytime hours under the County noise standards. The contribution of Alternative 4 to cumulative traffic noise effects on off-site receptors would be similar to that of the Proposed Action although the effect on on-site receptors would be somewhat reduced as major roadways serving adjacent areas and carrying traffic from other foreseeable projects would generally not traverse this site. Based on the significance criteria listed above and for the same reasons presented for the Proposed Action, the cumulative impact to on- and off-site receptors from traffic noise would remain **significant** However, contribution of the alternative to the cumulative impact to on-site receptors would be **less than significant** with mitigation while the contribution of the alternative to the cumulative impact to off-

site receptors would be **significant** even after mitigation.

Cumulative impacts from construction noise would be **less than significant** and stationary noise sources would have **no** cumulative impact.

4.3.8 Utilities and Service Systems

Identification of Direct and Indirect Impacts of the Proposed Action

For reasons presented in **Section 3.15, Utilities and Service Systems**, the effects of the Proposed Action on surface and groundwater supplies would not be substantial. However, because substantial new development is planned for western Placer County at this time, the Proposed Action's impact on water supply has the potential to cumulate with the impact from other development and is therefore evaluated below.

As described in **Section 3.15,** under **Impact UTIL-4**, the Proposed Action by itself would not require the expansion of the Pleasant Grove Wastewater Treatment Plant (WWTP) as adequate capacity exists at this time to treat the flows that would be generated at buildout of the Proposed Action. However, the Proposed Action would be developed incrementally over time and some of the excess capacity available at this time may not be available for the Proposed Action. Therefore, **Impact UTIL-4** analyzes the combined effect of the Proposed Action and other reasonably foreseeable projects in the area on WWTP capacity. That analysis is therefore an assessment of the cumulative impact of the Proposed Action in conjunction with the impacts of other future development. Similarly, **Impact UTIL-5** presents the impact of the Proposed Action in conjunction with the impacts of other reasonably foreseeable future development on solid waste handling and disposal facilities, and also represents a cumulative analysis. As they are adequately addressed in **Section 3.15,** these issues are not analyzed further below.

Current Status of the Resource

Water supplied to the Proposed Action would be from the American River, which supplies water to the Central Valley Project (CVP) and State Water Project (SWP) storage reservoirs that in turn respond to water demands imposed by their contracts and other non-project agricultural, municipal, and industrial demands. Within the City of Roseville's service area, most water supplies are for residential, commercial, and industrial users. The City of Roseville's water demand in 2008 was 36,559 afy (4,509 hectare-meters per year). Within Placer County Water Agency's service area, the majority of treated water is delivered to residential and commercial users. The total demand for treated water was 35,573 acre-feet (4,587 hectare-meters) in 2004 (Placer County Water Agency 2005).

With respect to groundwater resources, as explained in **Section 3.15,** the sustainable safe yield for the western Placer County portion of the North American Sub-basin is approximately 95,000 afy (11,700 hectare-meters per year). Total groundwater usage from agricultural and urban demands in western Placer County was about 97,000 afy (11,900 hectare meters per year)in 2003 (Placer County Water Agency 2006). Under these pumping conditions, the groundwater levels at the southern end of the basin have been stable since about 1982 and the levels have risen slightly at the northern end of the basin, indicating that 97,000 afy (11,900 hectare meters per year) is also within the safe yield of the basin. These groundwater levels indicate that groundwater pumping is currently in balance with the natural groundwater recharge rate. This is attributed to the conversion of agricultural lands to urban uses over the past several decades. With the land conversions, pumping demands have decreased, especially when heavy pumping uses such as rice farming have been taken out of production. It is expected that basin pumping demands will continue to decrease over time as urban development increases in the area (City of Roseville 2010a).

Significance Thresholds

The contribution of the Proposed Action or an alternative to a cumulative impact would be considered significant if the Proposed Action or an alternative would:

- Result in a demand for water that requires the development of new sources of water.

Cumulative Impact UTIL-1 Effect on Water Supply

Proposed Action and Alternatives

The cumulative effect from the Proposed Action and alternatives on water supply would be mitigated but would remain **significant and unavoidable.** Development of the Proposed Action, along with other foreseeable future development within the City of Roseville and outside the City's current boundaries, including buildout of the City's General Plan, the Creekview Specific Plan, the Amoruso Specific Plan, and Placer Ranch Specific Plan, would exceed the City of Roseville's existing currently contracted surface water supplies. Total cumulative water demand is estimated at 65,958 afy (8,135 hectare-meters per year) as shown in **Table 4.0-3, Cumulative Water Demand**. This is 7,058 afy (870 hectare meters per year) more than the City's Water Forum Agreement limitation on diversions from the American River in wet/normal years of 58,900 afy (7,264 hectare meters per year), but 1,139 afy (140 hectare-meters per year) less than the City's total normal/wet year water supply contracts of 66,000 afy (8,140 hectare meters per year).

Table 4.0-3
Cumulative Water Demand

Development Area	Surface Water Demand (afy)
City Buildout Demand	54,757
Proposed Action	3,609
Sierra Vista Urban Reserves*	1,096
Creekview Specific Plan	787
Regional University	543
Amoruso Specific Plan	1,210
Placer Ranch Specific Plan	3,956
Total Demand	**65,958**
Total Water Contracts	66,000
American River Allocation per WFA (Normal/Wet Years)	58,900
American River Shortfall (afy)	**7,058**

Source: City of Roseville 2010a; Mackay & Somps 2011
**Includes Westbrook and Chan Property*

Because the pace and timing of regional developments in Placer County through 2030 is currently unknown, and because some of the above-referenced pending projects currently contemplated by the City's General Plan may never come to fruition, the specific additional water supplies and the timing for obtaining them to serve potential future projects are uncertain. In addition to the City's full use of its Water Forum Agreement allocation of surface water from the American River, it is likely that future water supply would come from one or more of the following sources: additional cooperative agreements between Water Forum Agreement water purveyors for surface water from the American River, mandatory conservation measures, and new surface water supplies from the Sacramento River.

Furthermore, because the City's surface water supply under the Water Forum Agreement is insufficient to meet all demands during drier water years, the City's cumulative buildout demand (defined in this context to go beyond the current General Plan boundary) would require additional groundwater withdrawals in years when the surface supply is projected to be insufficient to fully meet the demand. Future urban growth would result in additional demands for surface and groundwater in the project area. Future water demands, as developed from community General Plan scenarios and other land use projections, are considered in the water supply operations model used for Central Valley Project (CVP) and State Water Project (SWP) for planning purposes. However, there are several large water supply projects that have not been assessed

through the current water supply operations modeling (i.e., California Department of Water Resources CALSIM II model) in a comprehensive manner. Additionally, there has been no comprehensive assessment of the future cumulative conditions that addresses new federal rules to protect endangered species, which directly and indirectly influence regional water supplies through obligations imposed on the integrated CVP/SWP operations. Climate change also may result in additional uncertain effects to future water supply conditions and CVP/SWP operations. In short, the CVP/SWP system is facing an unprecedented level of uncertainty that makes it impossible for lead agencies such as the USACE to predict the future without a great deal of speculation.

While water demand associated with buildout of the City's General Plan and the Proposed Action would be supplied by existing and assured sources of water, and as a matter of policy, the City of Roseville will not approve new specific plans or other projects absent sufficient water for buildout of such plans and projects, any increase in water demand in a region that does not have adequate and assured water supplies for cumulative development has the potential to result in a **significant** cumulative impact on water resources. No mitigation measure that is within the control of the USACE is available to address the potentially significant cumulative impact. Therefore the effect would be **significant and unavoidable**.

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