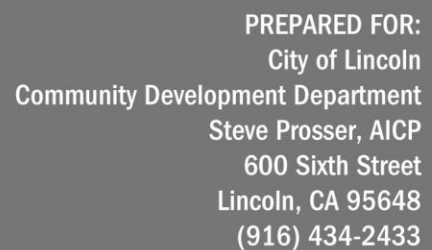




Draft Environmental Impact Report
**Independence at Lincoln
Development Project**



September 30, 2016



PREPARED FOR:
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for the
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September 30, 2016

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ACRONYMS AND ABBREVIATIONS

°F	degrees Fahrenheit
AADT	annual average daily traffic
AB	Assembly Bill
AB 32	California Global Warming Solutions Act of 2006
Act	Leroy F. Greene School Facilities Act
ADT	average daily traffic
APE	area of potential effects
ARB	California Air Resources Board
ASWA	Alternate Saratoga Way Alignment
BACT	best available control technology
BMP	best management practice
CAA	federal Clean Air Act
CAAA	federal Clean Air Act Amendments of 1990
CAAQS	California Ambient Air Quality Standards
CALGreen	California Green Building Standards Code
Caltrans	California Department of Transportation
CBC	California Building Code
CCAA	California Clean Air Act
CCR	California Code of Regulations
CCRR	California Central Railroad
CCRs	covenants, conditions, and restrictions
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CGS	California Geologic Survey
City of Lincoln	City of Lincoln
CNDDDB	California Natural Diversity Data Base
CNEL	community noise equivalent level
CNPS	California Native Plant Society
CNRA	California Natural Resources Agency
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	CO ₂ -equivalent
CRHR	California Register of Historical Resources
CSMP	corridor system management plan
CVFPB	Central Valley Flood Protection Board

CWA	Clean Water Act
cy	cubic yards
dB	decibel
dBA	A-weighted decibel
dbh	diameter breast height
Delta	Sacramento–San Joaquin Delta
Department	City of Lincoln Fire Department
DOF	California Department of Finance
DWR	California Department of Water Resources
EDD	California Employment Development Department
EIR	environmental impact report
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESA	Environmental Site Assessment
FEMA	Federal Emergency Management Agency
FGC	California Fish and Game Code
FHWA	Federal Highway Administration
FICAN	Federal Interagency Committee on Aviation Noise
FICON	Federal Interagency Committee on Noise
FTA	Federal Transit Administration
GHG	greenhouse gas
HAP	hazardous air pollutant
HCM	<i>Highway Capacity Manual</i>
HCP	habitat conservation plan
HDR	High Density Residential
I-80	Interstate 80
in/sec	inches per second
IPCC	Intergovernmental Panel on Climate Change
lb/day	pounds per day
L _{dn}	day-night sound level
L _{eq}	equivalent continuous sound level
LID	Low Impact Development
L _{max}	maximum sound level
L _{min}	minimum sound level
LOS	level of service
MBTA	Migratory Bird Treaty Act

mgd	million gallons per day
MMT	million metric tons
MPO	Metropolitan Planning Organization
MRF	Material Recovery Facility
MT CO ₂ e/year	metric tons of carbon dioxide equivalent
MUTCD	<i>California Manual on Uniform Traffic Control Devices</i>
MWEL0	California Model Water Efficient Landscape Ordinance
NAAQS	national ambient air quality standards
NAHC	Native American Heritage Commission
NCCP	natural community conservation plan
NESHAP	national emissions standards for HAPs
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NHTSA	U.S. Department of Transportation, National Highway Traffic Safety Administration
NID	Nevada Irrigation District
NMFS	National Marine Fisheries Service
NO	nitric oxide
NO ₂	nitrogen dioxide
NOP	Notice of Preparation
NO _x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
OHWM	ordinary high water mark
OSHA	Occupational Safety and Health Administration
PCAPCD	Placer County Air Pollution Control District
PCCP	Placer County Conservation Plan
PCWA	Placer County Water Agency
PG&E	Pacific Gas and Electric Company
PGA	peak ground acceleration
Placer County ALUCP	Placer County Airport Land Use Compatibility Plan
Placer Legacy Program	Placer Legacy Open Space and Agricultural Conservation Program
PM ₁₀	respirable particulate matter with an aerodynamic diameter of 10 micrometers or less
PM _{2.5}	fine particulate matter with an aerodynamic diameter of 2.5 micrometers or less
Police Department	City of Lincoln Police Department
ppt	parts per trillion
PPV	peak particle velocity
PRC	Public Resources Code
project	Independence at Lincoln Development Project
REC	Recognized Environmental Condition

RHNP	Regional Housing Needs Plan
RMS	root-mean-square
ROG	reactive organic gases
RWQCB	regional water quality control board
SACOG	Sacramento Area Council of Governments
SB	Senate Bill
SB 18	Senate Bill 18
SCAQMD	South Coast Air Quality Management District
SCS	Sustainable Communities Strategy
SEL	single-event noise levels
SIP	State Implementation Plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO ₂	sulfur dioxide
SP	service population
SR	State Route
SR 65	State Route 65
SSB	Shingle Springs Band of Miwok Indians
SVAB	Sacramento Valley Air Basin
SVP	Society of Vertebrate Paleontology
SWMM	Stormwater Management Manual
SWPPP	storm water pollution prevention plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TCRs	tribal cultural resources
TDF	travel demand forecasting
TPY	tons per year
UAIC	United Auburn Indian Community of the Auburn Rancheria
UCMP	University of California Museum of Paleontology
USACE	U.S. Army Corp of Engineers
VdB	vibration decibels
VOC	volatile organic compound
WPUSD	Western Placer Unified School District
WPWMA	Western Placer Waste Management Authority
WRSL	Western Regional Sanitary Landfill
WSA	water supply assessment
WWTRF	wastewater treatment and reclamation facility

1 INTRODUCTION

This environmental impact report (EIR) describes the potential consequences of developing the Independence at Lincoln Development Project (project). The purpose of an EIR is to evaluate the project's effects on environmental resources, both singularly and in a cumulative context, to examine alternatives to the project as proposed, and identify mitigation measures to reduce or avoid potentially significant effects. This document has been prepared in compliance with the California Environmental Quality Act (CEQA; Sections 21000-21189 of the Public Resources Code [PRC]) and the State CEQA Guidelines (Title 14, Sections 15000-15387 of the California Code of Regulations).

The project is a proposed master-planned residential community in the City of Lincoln that would include construction of 575 single-family, residential homes on 94.3 acres, 45.6 acres of passive open space and preservation areas, 13.6 acres of active parks including a community center, a 2.7-acre mixed-use area, and three gross acres of public facilities and major roadway areas. A 0.8-acre frontage area surrounding the Western Placer Unified School District bus yard parcel (bus yard parcel), located southwest of the Nicolaus Road/Waverly Drive intersection may be disturbed as part of the project to allow right-of way expansion, if needed, at the intersection. No changes or development activity are proposed within a 35-acre parcel designated as a "Remainder Area" located within the southeastern portion of the project site and south of the tributary to Markham Ravine. The project is described in detail in Chapter 3, "Project Description," of this EIR.

1.1 PURPOSE AND INTENDED USES OF THIS EIR

CEQA requires that public agencies consider the potentially significant adverse environmental effects of projects over which they have discretionary approval authority before taking action on those projects (PRC Section 21000 et seq.). CEQA also requires that each public agency avoid or mitigate to less-than-significant levels, wherever feasible, the significant adverse environmental effects of projects it approves or implements. If a project would result in significant and unavoidable environmental impacts (i.e., significant effects that cannot be feasibly mitigated to less-than-significant levels), the project can still be approved, but the lead agency's decision-maker, in this case the City of Lincoln, City Council, must prepare findings and issue a "statement of overriding considerations" explaining in writing the specific economic, social, or other considerations that they believe, based on substantial evidence, make those significant effects acceptable (PRC Section 21002, CCR Section 15093).

According to CCR Section 15064(f)(1), preparation of an EIR is required whenever a project may result in a significant adverse environmental impact. An EIR is an informational document used to inform public agency decision makers and the general public of the significant environmental effects of a project, identify possible ways to mitigate or avoid the significant effects, and describe a range of reasonable alternatives to the project that could feasibly attain most of the basic objectives of the project while substantially lessening or avoiding any of the significant environmental impacts. Public agencies are required to consider the information presented in the EIR when determining whether to approve a project.

In accordance with CCR Section 15161, this document is a project EIR that examines the environmental impacts of a specific project. This type of EIR focuses on the changes in the environment that would result from a specific project. In accordance with CCR Section 15161, a project EIR must examine the environmental effects of all phases of the project, including construction and operation.

Because they have the principal authority over approval of the project, the City of Lincoln is the lead agency, as defined by CEQA, for this EIR. Other public agencies with jurisdiction over the project are listed below in Section 1.3, "Agency Roles and Responsibilities."

1.2 SCOPE OF ENVIRONMENTAL ANALYSIS

Pursuant to CEQA and the CEQA Guidelines, a lead agency shall focus an EIR's discussion on significant environmental effects and may limit discussion on other effects to brief explanations about why they are not significant (PRC Section 21002.1, CCR Section 15128). A determination of which impacts would be potentially significant was made for this project based on review of the information presented in the Initial Study prepared for the project (Appendix A) and comments received as part of the public scoping process (Appendix A), as well as additional research and analysis of relevant project data during preparation of this Draft EIR.

The City has determined that the project has the potential to result in significant environmental impacts on the following resources, which are addressed in detail in this Draft EIR:

- ▲ Aesthetics
- ▲ Greenhouse Gas Emissions
- ▲ Cultural Resources
- ▲ Noise
- ▲ Population and Housing
- ▲ Air Quality
- ▲ Biological Resources
- ▲ Hydrology and Water Quality
- ▲ Public Utilities, Services, and Water Supply
- ▲ Traffic and Transportation

1.2.1 Effects Found Not to be Significant

CEQA allows a lead agency to limit the detail of discussion of the environmental effects that are not considered potentially significant (PRC Section 21100, CCR Sections 15126.2[a] and 15128). Effects dismissed in an Initial Study as clearly insignificant and unlikely to occur need not be discussed further in the EIR unless the lead agency subsequently receives information inconsistent with the finding in the Initial Study (CCR Section 15143).

Based on a review of the information presented in the Initial Study prepared for the project (Appendix A) and comments received as part of the public scoping process (Appendix A) as well as additional research and analysis of relevant project data during preparation of this Draft EIR, the following were identified as resources that would not experience any significant environmental impacts from the project. Accordingly, these resources are not addressed further in this Draft EIR, but are identified below with a brief explanation as to why impacts to each resource are not anticipated, as required by CEQA.

- ▲ Agricultural and Forest Resources
- ▲ Hazards & Hazardous Materials
- ▲ Mineral Resources
- ▲ Geology and Soils
- ▲ Land use and Planning
- ▲ Recreation

AGRICULTURAL AND FOREST RESOURCES

On the California Department of Conservation Important Farmland Map, the project site is designated as Urban and Built-Up Land and Other land with a small portion of grazing land in the northwest (DOC 2012). From the mid- 1970s until 2004, the City's former wastewater treatment plant was located on the project site (Wallace-Kuhl 2013a: 9). Since then, no agricultural or grazing uses have occurred on the site and the site has remained inactive. The site does not contain soils designated as Important Farmland (i.e., Prime Farmland, Unique Farmland or Farmland of Statewide Importance) (DOC 2012), is not zoned for agricultural uses, and is not enrolled in a Williamson Act contract.

An undeveloped parcel located south of the project site is enrolled in a Williamson Act Contract; however, non-renewal was filed pursuant to Government Code Section 51245 (DOC 2016). The undeveloped parcels located south and west of the project site do not contain active agricultural uses and do not appear to have been used for agricultural purposes for some time. The site is not used or zoned for timber harvest, and no forest land exists on the site.

Therefore, development of the project site is not anticipated to result in direct or indirect conversion of farmland to non-agricultural use (or forest land to non-forest use) [see Appendix A of this EIR: 2-5 and 2-6]. No impact would occur and this issue will not be discussed further in the EIR.

GEOLOGY AND SOILS

The City of Lincoln is 90 miles east of the Bay Area and lies within Seismic Risk Zone 3, a risk zone that poses a lesser risk for earthquakes than those experienced in Zone 4 (e.g., San Francisco Bay Area). As a result, the City could be affected by regionally occurring earthquakes; however, impacts resulting from such an event would be less in nature than those experienced in the Bay Area. The City is not located within and does not cross a delineated Alquist-Priolo Earthquake Fault Zone. Because the project site is not located within any special study areas and is not subject to Alquist-Priolo requirement, the potential for surface rupture at the project site is considered low (Fugro 2015), and no impact would occur (see Appendix A of this EIR: 2-12 through 2-14).

Anticipated earthquake intensity within a particular area is commonly estimated as peak ground acceleration (PGA). For a 475-year event utilizing the California Geologic Survey's Probabilistic Seismic Hazard Assessment Model, the PGA for the project site is 0.10g to 0.20g (i.e., "g" represents the force of gravity) (Fugro 2015). These PGA values translate into an intensity value of "1" (i.e., earthquake not felt). Therefore, strong seismic ground shaking at the site is considered unlikely. In addition, compliance with the requirements of the 2013 California Building Code (CBC) and the City of Lincoln Municipal Code and Ordinances, Chapter 15.04, Adoption of Uniform and California Codes, is required and the City of Lincoln would be responsible for ensuring the project incorporates necessary design elements for seismic safety before approval of project improvement plans and building permits (see Appendix A of this EIR: 2-12 through 2-14). Therefore, the impact is considered less-than-significant and will not be analyzed further in the EIR.

Because of the City's substantial distance from the active Hayward, Cleveland Hills, and Concord Fault zones and the type of ground shaking expected from those faults, the probability of soil liquefaction within the City is considered low (ESA 2006: 8-2). Excavation and sampling of seven test pits located throughout the site revealed that surface and near-surface soils consist of silty sands (Wallace-Kuhl 2013b: 4) and recent measurements taken over the past 15 to 20 years by the California Department of Water Resources (DWR) indicate the groundwater elevation in the project area has varied between approximately 50 to 60 feet below existing site grades (Wallace-Kuhl 2013b: 4). Based upon the project site's known geologic, seismology, groundwater, and soil conditions, the potential for liquefaction occurring at the site is very low (Wallace-Kuhl 2013b: 6) (see Appendix A: 2-12 through 2-14, of this EIR). This would be a less-than-significant impact and will not be analyzed further in the EIR.

This project would require connection to the Lincoln Wastewater Treatment and Reclamation Facility wastewater collection and treatment system. Onsite waste disposal systems would not be used; therefore, no impact would occur and this impact will not be analyzed further in the EIR.

The potential for soils to demonstrate expansive properties is primarily dependent upon clay content. Clay particles can swell by absorbing large amounts of water relative to their volume. When these particles dry out, they shrink. Wallace-Kuhl provided testing of soils at the site within three feet of the existing ground surface in Lot 1B of the project site (For Lot locations, see Appendix A of this EIR: Exhibit 1-2) and reported expansion indices (EI) values of less than 20, suggesting that tested site soils have a low shrink-swell potential. Based on findings of the preliminary geotechnical report for the project site and description of materials from tests pits and information provided in published soil surveys, it is likely that existing soils in Lots 1A and 2-5 of the project site would also have a low shrink-swell potential (see Appendix A: 2-12 through 2-14, of this EIR). This is considered a less-than-significant impact (see Appendix A: 2-12 through 2-14, of this EIR) and will not be discussed further in the EIR.

In areas of the site proposed for development, topography is generally gently undulating with slopes of two to nine percent. Slope instability at the project site, as a result of seismic events, has very low potential

because of the lack of relief across the area and its distance from active and potentially active faults (Fugro 2015). Currently, a soil berm is located along the north and west sides of the Markham Ravine. The berm was observed to have a crest elevation of approximately 135 feet and slide slopes of approximately 50 percent. The berm would be completely deconstructed as part of the project, making the chances of landslide on the project site very low. Impacts related to landslides and slope instability would be less than significant with implementation of the project (see Appendix A: 2-12 through 2-14, of this EIR). This issue will not be addressed further in the EIR.

Predominant soils mapped across the project site have a low to moderate susceptibility to erosion. The erosion potential of the soils on or at the near surface of the site are considered low in part because of the clay content of the soils and the generally low relief across the project site (Fugro 2015: 3). Construction would involve soil disturbance, including grading, and excavations. Any portions of the site subject to concentrated runoff, or areas with unprotected piles of bare soil, would be susceptible to erosion. This would be a potentially significant impact. Implementation of Mitigation Measure HYDRO-1 (see Section 4.6, Hydrology & Water Quality, of this EIR) would reduce this impact to a less-than-significant level. Mitigation Measure HYDRO-1 is included in Table 2-1 of this EIR (see Chapter 2, Executive Summary).

As discussed in the Initial Study for the project (see Appendix A: 2-12 through 2-14, of this EIR), the project site is underlain by Pleistocene alluvial fan deposits of the Lower Member of the Riverbank Formation (Wallace-Kuhl 2013b: 3). The Lower Member of the Riverbank Formation consists primarily of non-consolidated to semi-consolidated, red to reddish brown silts, sands, and gravels, with minor amounts of clay, derived from granitic and metamorphic rocks of the Sierra Nevada (Wallace-Kuhl 2013b: 3-4). The potential for an unstable geologic unit or the geologic unit to become unstable as a result of the project is unlikely (Fugro 2015: 3). However, unstable soil conditions at the site would consist of observed areas of un-engineered fill and areas where soils have been disturbed by demolition activities. In these areas, the soils could be soft and compressible (Fugro 2015: 3-4). The potential for soils to demonstrate expansive properties is primarily dependent upon clay content. Clay particles can swell by absorbing large amounts of water relative to their volume. When these particles dry out, they shrink. Results from the sampling of test pits on the project site by Wallace-Kuhl suggested site soils have a low-shrink potential (2013a). While no specific soil or geologic hazards have been identified on the site, the Placer area is susceptible to ground shaking and potential hazards would be mitigated to a less-than-significant level with implementation of the following measure provided in the Initial Study Checklist analysis for the project (see Appendix A: 2-12 through 2-14, of this EIR).

Mitigation Measure GEO-1:

To lessen potential damage from strong or violent ground shaking from seismic hazards, before the issuance of permits for the construction of infrastructure and buildings, a geotechnical engineer shall prepare a detailed geotechnical report incorporating the specific mitigation of seismic hazards pursuant to State law, as detailed in the California Building Code, and as required by the City of Lincoln building permit process to ensure that structures and infrastructure can withstand ground accelerations expected from seismic activity. The improvement plans shall incorporate all design and construction criteria specified in the Preliminary Geotechnical Engineering Report (Wallace-Kuhl 2013b) and a detailed geotechnical report that is required before site development. The geotechnical engineer shall sign the improvement plans and approve them as conforming to their recommendations before approval. The project geotechnical engineer shall provide geotechnical observations during construction, which will allow the geotechnical engineer to compare the actual with the anticipated soil conditions and to check that the contractor's work conforms to the geotechnical aspects of the plans and specifications. The geotechnical engineer of record shall prepare letters and as-built documents, to be submitted to the City, to document their observances during construction and to document that the work performed is in accordance with the project plans and specifications.

Mitigation Measure GEO-1 is included in Table 2-1 of this EIR (see Chapter 2, Executive Summary).

HAZARDS & HAZARDOUS MATERIALS

The project site is located on the former location of the City of Lincoln wastewater treatment facility (treatment facility). The treatment facility was deactivated in 2004 after the City completed the construction and full activation of a new wastewater treatment and reclamation facility. Since 2004, the City has been processing a long-term decommissioning process for the facility that includes berm deconstruction, soil removal, grading, and the deconstruction of old wastewater conveyance facilities.

In 2013, a Phase 1 Environmental Site Assessment (ESA) was performed at the project site for evidence of potential Recognized Environmental Conditions (RECs) [i.e., presence of hazardous substances or petroleum products released into the environment]. No RECs associated with the project site were encountered. Limited Phase II Surface Soil Sampling was conducted on the site in 2013 and included the testing of 17 surficial soil samples from various locations across the site, including former spray field areas and aeration ponds.

Construction activities involve the use hazardous materials such as solvents, gasoline, and oil. Construction and operation of the project may include use of solvents, cleaning agents, gasoline, and other hazardous materials. The use of hazardous materials and disposal of hazardous wastes are subject to numerous laws and regulations at all levels of government. It is not anticipated that the routine use of these materials handled in accordance with laws and regulations would create a significant hazard to the public or the environment. This would be a less-than-significant impact and will not be discussed further in the EIR.

As discussed in the Initial Study Checklist for the project (see Appendix A: 2-16 through 2-19, of this EIR), existing schools located within 0.25 mile of the project are Horizon Charter School and Little Peeps Preschool. The use of hazardous materials and disposal of hazardous wastes are subject to numerous laws and regulations at all levels of government. Therefore, it is not anticipated that the routine use of these materials handled in accordance with laws and regulations would create a significant hazard to the public or the environment. This would be a less-than-significant impact and will not be discussed further in the EIR.

No private airstrips are located within the vicinity of the project site. According to the Placer County Airport Land Use Compatibility Plan (Placer County ALUCP), the project site is located within Compatibility Zone C2 for Lincoln Regional Airport, approximately 0.8 mile northwest of the airport's primary runway (see Appendix A: 2-16 through 2-19, of this EIR). One of the required project approvals includes Airport Land Use Commission review of the proposed General Plan Amendment and rezoning for consistency with the Placer County ALUCP. Within Compatibility Zone C2, aircraft typically overfly these areas at an altitude of 1,000 to 1,500 feet above ground level on visual approaches. Safety is a concern only with regard to uses involving high concentrations of people and particularly risk-sensitive uses such as schools and hospitals (PCTPA 2014: 6-3 and 6-4). For Lincoln Regional Airport, the Placer County ALUCP's intensity criteria for single-family residential home land uses within Compatibility Zone C is a maximum sitewide average intensity of 300 people per acre and maximum single-acre intensity of 1,200 people per acre. Using the City's 2010 average household size of 2.59 people (City of Lincoln 2013: 9), the project's construction of 575 single-family, residential homes at the site would increase population by 1,490 individuals. With development of homes on 94.3 acres of the 194.2-acre site, the density of development would be approximately 16 people per acre, well below the lowest sitewide intensity standard in the Placer County ALUCP. Therefore, the project would be consistent with the Placer County ALUCP's land use compatibility and safety standards (see Appendix A: 2-16 through 2-19, of this EIR). No schools or hospitals are proposed as part of the project. This would be a less-than-significant impact and will not be discussed further in the EIR.

As discussed in the Initial Study Checklist for the project (see Appendix A: 2-16 through 2-19, of this EIR), the project site is not located within a wildland area as identified by the California Board of Forestry and Fire Protection (CAL FIRE 2008) and is bound by development to the north, east, and west, with frontage to undeveloped land to the west and southeast. Because the project is not located within a wildland area and is primarily surrounded by urban development, the project site is not considered a forest fire risk. This issue will not be analyzed further in the EIR.

In October 2015, Fugro conducted a search of online environmental database resources (Geotracker, Envirostor, and California Integrated Water Quality System Project (CIWQS)) to determine if the site is still being regulated. There is no indication that the site, which was an active or regulatory controlled site, has been formally closed. The wastewater ponds are still shown on the map used by Geotracker and Envirostor; however, there are no links to site details as would be customary for a former wastewater treatment facility. The CIWQS website indicates inspections of the site were conducted by the Central Valley Regional Water Quality Control Board (Central Valley RWQCB) staff regarding rough grading in December 2010 and May 2011, with verbal communication from Central Valley RWQCB to the City of Lincoln on June 7, 2012. The CIWQS website also indicates that in October 2013, the City of Lincoln was required to operate grading activities under the Construction General Permit 2009-0009-DWQ (Site ID 5S31C371593), which superseded a request from 2010 to operate under permit 5S31C358986 (Fugro 2015a). The regulatory file is anticipated to stay open until decommissioning of the site is completed.

As discussed in the Initial Study Checklist analysis for the project (see Appendix A: 2-16 through 2-19, of this EIR), a Phase I and Limited Phase II ESA was prepared by Wallace-Kuhl & Associates in 2013 to determine if the project area contains listed hazardous materials and waste sites. As discussed in the 2013 Phase I ESA, the former WWTP facility was listed as a hazardous materials site pursuant to its being listed with Waste Discharge Requirements. The ESA's concluded that no RECs associated with the project site were encountered. The Phase II ESA confirmed that nitrogen and Kjeldahl nitrogen were elevated above human health risk thresholds in all samples, and one sample contained elevated cobalt concentrations. Direct exposure to the high nitrate and/or total Kjeldahl nitrogen may pose a risk to human health (Wallace-Kuhl 2013c: 3). During construction activities, construction workers could come in contact with and be exposed to hazardous materials present in onsite soils and groundwater. Further, the presence of contaminated soils or groundwater could create a significant public health or environmental hazard if left in place.

Decommissioning activities at the project site are still ongoing. Until the City obtains final regulatory closure certification (i.e., demonstrate facility closure in accordance with specifications in the approved closure plan and obtain recommendation for no restrictions to a future residential land use) from Central Valley RWQCB and any other regulatory agency with oversight of the former facility activities on the project site, it is assumed that the potential for people to be exposed to contaminated soil during project construction would be potentially significant. As discussed in the Initial Study Checklist analysis for the project, implementation of Mitigation Measure HAZ-1 would reduce the impact to a less-than-significant level:

Mitigation Measure HAZ-1:

The City shall obtain final regulatory closure certification from the Central Valley RWQCB and any other regulatory agency with oversight of the former wastewater facility activities, and implement and document any and all regulatory driven mitigations. The City shall ensure the Board has been provided a copy of all environmental documents requested in the 2013 Phase I and Phase II reports along with any subsequent environmental studies of the site. Best management practices, including but not limited to the following, shall be implemented by the applicant before groundbreaking activities and/or during project construction at the site:

- ▲ All previously completed site-specific studies including Wallace-Kuhl 's October 2013 Preliminary Geotechnical Engineering Report, Phase I, and Phase II Environmental Site Assessment (ESA) reports, shall be submitted to the Central Valley RWQCB for their review and comment.
- ▲ A Facility Closure Report, documenting the tasks completed, observations made, environmental conditions observed and addressed including those items identified in the 2013 Wallace-Kuhl Phase I report shall be prepared and submitted to the Central Valley RWQCB for their review and comment.
- ▲ The City shall obtain final regulatory closure certification for the former waste water treatment facility from the Central Valley RWQCB and any other regulatory agency with oversight of the former facility activities, and document the implementation of any and all regulatory driven mitigations.
- ▲ During site development, the applicant shall ensure the following BMPs are implemented:

- Develop and implement a Soil Management Plan approved by the Central Valley RWQCB that includes specific measures for:
 - Dust control and minimization of vehicle tracking offsite.
 - Control of erosion in the area of the Markham Ravine.
 - Removal of all stockpiled soil, debris piles, and any stained soils. These materials shall not be reused onsite unless the materials are tested and the data is provided to the Central Valley RWQCB for their evaluation, consideration, and approval for reuse.
 - Removal and documentation sampling/testing of any additionally identified area(s) where facility improvements including but not limited to structures, pipelines, wells, transformers, etc., have been identified during development. Removal and appropriate sampling to be conducted under the oversight of an environmental professional, and will include notification to the regulatory agency.

Mitigation Measure HAZ-1 is included in Table 2-1 of this EIR (see Chapter 2, Executive Summary).

LAND USE AND PLANNING

The project site is currently designated as Business Professional (BP), Open Space (OS), Agriculture (AG), Medium-Density Residential (MDR) (6-12.9 units per gross acre), and Low Density Residential (LDR) (3-5.9 units per gross acre) in the City of Lincoln General Plan. The project site is currently zoned as Industrial (I).

As described in the Initial Study Checklist for the project (see Appendix A: 2-23 through 2-26, of this EIR), surrounding lands are designated in the City of Lincoln General Plan as LDR, Community Commercial (CC), and OS to the north; LDR, MDR, and OS to the east; LDR, Parks and Recreation (PR), and Public Facilities (PF) to the south/southeast (City of Lincoln 2014). Adjacent land to the south/southwest and west are located in Placer County and within the City of Lincoln's existing Sphere of Influence boundary. These areas are designated as Special Use District B (SUD-B) in the City of Lincoln General Plan Land Use and Circulation Diagram (2014). The SUD-B designation was created in response to protecting Lincoln Regional Airport and providing for identified economic development opportunities that are compatible with airport operations and the City's vision of an economically sustainable community (City of Lincoln 2008: 4-42).

The project site is a former wastewater treatment plant site that is in the final phases of being decommissioned and is surrounded by urban development to the north, east, and south/southwest. The project would result in development of a master-planned residential community within the project site. Development of the project would not physically divide the existing community because residential land uses are already an established use in the surrounding project area. The project site is not currently open to the public; however, implementation of the project would provide new public vehicle, pedestrian, and recreational access to the site, including neighboring residents. This impact would be less than significant and this issue will not be discussed further in the EIR.

The project is a proposed master-planned residential community development in an area where residential development already exists. Development of the site as proposed would alter the existing landscape from undeveloped disturbed land to a residential community, but the project site has been designated for urban development in the City's General Plan and Zoning Ordinance. Development of the project would not be consistent with some of the current land use designations and zoning of the project site. Therefore, an amendment to land use designations and rezoning of 159.2 acres of the project site is proposed. The project would require a General Plan Amendment from the City of Lincoln to amend existing land use designations from Business Park to Medium Density Residential, Park and Open Space for the western portion of the property; Medium Density Residential to Low Density Residential and Park for a small area on the eastern portion of the property; Agriculture to Mixed Use for an area adjacent to Nicolaus Road; and an increase in the

area designated as Open Space around the portion of the Markham Ravine tributary that traverses the site. The “Remainder Area” on the eastern portion of the property south of the Markham Ravine tributary is currently designated as Low Density Residential and Medium Density Residential and is not proposed to be changed as a part of this entitlement request. The project would also require a Rezone from the City of Lincoln from its existing zoning as Industrial to Single Family Residential (Residential-1 PD), Open Space, Park, and Commercial. The “Remainder Area” is currently zoned Industrial and is not proposed to be changed as a part of this entitlement request. These requested designation changes if the project is approved by the City of Lincoln would ensure that the project does not conflict with the City’s General Plan or Zoning Ordinance. Therefore, this impact would be less than significant and this issue will not be discussed further in the EIR.

MINERAL RESOURCES

As described in the Initial Study Checklist for the project (see Appendix A: 2-27, of this EIR), the California Geologic Survey (CGS) has mapped mineral and mineral aggregate resources in Placer County. The MZ-4 designation covers the site and the surrounding area, a designation defined as “areas of no known mineral occurrences where geologic information does not rule out either the presence or absence of significant mineral resources” (California Division of Mines and Geology 1995). No mineral extraction operations exist at the property. Additionally, there are no oil and gas extraction wells within or in the vicinity of the property. The Placer County General Plan 2013 does not indicate the project vicinity is a locally important resource recovery site. Therefore, no impact to mineral resources would occur and this issue is not discussed further in the EIR.

RECREATION

The City of Lincoln has an adopted standard of five acres of park land per 1,000 residents for new development within the existing city limits, which do not require a development agreement. This requirement can be met through the provision of park credit for a variety of traditional and non-traditional park lands. The amount of credit granted against the five acre per 1,000 population standard may vary based upon the recreational value of the land to City residents (City of Lincoln 2008: 4-8).

As described in the Initial Study Checklist for the project (see Appendix A: 2-32, of this EIR), the project would result in the construction of 575 single-family residential homes. Pursuant to Lincoln Municipal Code Section 17.32.040, when determining park dedication for single-family residences an average density of 3.6 is used. Based on this ratio, the addition of 575 single-family units at the site would increase population by 2,070 individuals. This would require the project to create at least 10.35 acres of parks. The project includes 13.6 acres of active parks including a community center and 45.6 acres of passive open space and preservation areas. Because the project would meet the City’s adopted standard of park acreage to resident ratio, the project is not anticipated to increase the demand on existing parks and recreational facilities or require the need for expanded parks or recreational facilities in the area. This would be a less-than-significant impact and this issue will not be discussed further in the EIR.

1.3 LEAD, RESPONSIBLE, AND TRUSTEE AGENCIES AND APPLICABLE PERMITS

The City of Lincoln is the lead agency for evaluation of the project under CEQA. The lead agency is the public agency with the principal responsibility for carrying out or disapproving a project. The lead agency is also responsible for scoping the analysis, preparing the EIR, and responding to comments received on the Draft EIR. Prior to making a decision to approve a project, the lead agency is required to certify that the EIR has been completed in compliance with CEQA, that the decision-making body reviewed and considered the information in the EIR, and that the EIR reflects its independent judgment.

Public agencies with known permits, other approvals, or jurisdiction by law over resources on the site included, but may not be limited to, the agencies listed below:

1.3.1 Lead Agency

- ▲ City of Lincoln: overall project approval, including certification of the adequacy of this EIR.

1.3.2 Federal Agencies (Potential Permitting Authority)

- ▲ U.S. Fish and Wildlife Service (sensitive species consideration)

1.3.3 State Responsible Agencies

- ▲ California Department of Fish and Wildlife (consideration of special-status species and species of special concern)
- ▲ Central Valley Regional Water Quality Board (permitting requirements, including final regulatory closure certification associated with the former wastewater treatment plant)

1.3.4 Local Responsible Agencies

- ▲ City of Lincoln (related to water and sewer service and potential roadway and pedestrian walkway improvements; general plan and zoning amendments; tree permit)
- ▲ Placer County Air Pollution Control District (authority to construct)
- ▲ Placer County ALUC (Airport Land Use Commission review of the proposed General Plan Amendment and rezoning for consistency with the Placer County ALUCP)
- ▲ Placer County School District (related to school district capacity to serve project)
- ▲ Placer County Transit (review and approval of improvement plans)
- ▲ Placer County Water Agency (water supply review)
- ▲ WWTRF
- ▲ Western Placer Waste Management Authority

1.4 CEQA PUBLIC REVIEW PROCESS

Notice of Preparation and Initial Study

In accordance with PRC Section 21092 and CCR Section 15082, the City issued a notice of preparation (NOP) and Initial Study on November 19, 2015, to inform agencies and the general public that an EIR was being prepared and to invite comments on the scope and content of the document (Appendix A). The NOP and Initial Study were submitted to the State Clearinghouse and made available at the City of Lincoln Community Development Department. In addition, the NOP was distributed directly to public agencies (including potential responsible and trustee agencies) and interested parties. The NOP was circulated for a 30-day review period, with comments accepted between November 19, 2015 and December 18, 2015.

In accordance with CCR Section 15082 (c), a noticed scoping session for the EIR occurred on December 16, 2015, in the Community Meeting Room at City Hall.

The purpose of an NOP is to provide sufficient information about the project and its potential environmental impacts to allow agencies and interested parties the opportunity to provide a meaningful response related to the scope and content of the EIR, including mitigation measures that should be considered and alternatives that should be addressed (CCR Section 15082[b]). Comments submitted in response to the NOP are used by the lead agency to identify broad topics to be addressed in the EIR. Comments on environmental issues received during the NOP public comment period are considered and addressed in this Draft EIR.

Public Review of this Draft EIR

This Draft EIR is being circulated for public review and comment for a period of 45 days, beginning **September 30, 2016**, and ending **November 14, 2016**.

A public hearing will be held in the third floor meeting room of City Hall, located at 600 Sixth Street, Lincoln, CA 95648 on **October 26, 2016, at 6:00 p.m.** to receive input from agencies and the public on the Draft EIR.

During the public comment period, written comments from the general public as well as organizations and agencies on the Draft EIR's accuracy and completeness may be submitted to the lead agency. Because of time limits mandated by State law, comments should be provided no later than 4:45 p.m. on **November 14, 2016**. Please send all comments to:

Steve Prosser, AICP
City of Lincoln, Community Development Department
600 Sixth Street
Lincoln, CA 95648
(916) 434-2433
Email: Steve.Prosser@lincolnca.gov
Website: www.lincolnca.gov

Agencies that will need to use the EIR when considering permits or other approvals for the project should provide the name of a contact person, phone number, and email address. Comments provided by email should include the name and physical address of the commenter.

Copies of this Draft EIR are available for public review at City of Lincoln Community Development Department, 600 Sixth Street, Lincoln, CA 95648 and at the Lincoln Public Library, 485 Twelve Bridges Drive, Lincoln, CA 95648.

The Draft EIR is also available for public review online at: <http://www.lincolnca.gov>.

Final EIR

Following public review of the Draft EIR, a Final EIR will be prepared that will include both written and oral comments on the Draft EIR received during the public review period, responses to those comments, and any revisions to the Draft EIR. The Draft EIR and the Final EIR will comprise the EIR for the Independence at Lincoln Development Project.

Before taking action on the Independence at Lincoln Development Project, the lead agency is required to certify that the EIR has been completed in compliance with CEQA, that the decision-making body reviewed and considered the information in the EIR, and that the EIR reflects the independent judgment of the lead agency.

1.5 ORGANIZATION OF THE DRAFT EIR

The remainder of this document includes a detailed description of the project, analysis of potential environmental impacts that could result from project implementation, discussion of cumulative and growth-inducing impacts, and evaluation of potential alternatives to the project. This information is organized as detailed below.

Chapter 2: Summary of Environmental Effects provides an overview of the environmental evaluation, including impact conclusions and recommended mitigation measures.

Chapter 3: Project Description describes the location of the project, the project background, existing conditions on the project site, and the nature and location of specific elements of the project.

Chapter 4: Affected Environment, Environmental Consequences, and Mitigation Measures includes a topic-by-topic analysis of impacts that would or could result from project implementation. The analysis is organized in 10 topical sections. Each section includes a discussion of the environmental and regulatory setting, impact analysis, and mitigation measures.

Chapter 5: Other CEQA Considerations includes a discussion of cumulative impacts, growth inducement, and unavoidable adverse impacts.

Chapter 6: Project Alternatives describes feasible alternatives to the project, including the no project alternative, describing the consequences of taking no action.

Chapter 7: References lists all resources used throughout the Draft EIR.

Chapter 8: Report Preparation identifies preparers of the Draft EIR.

Chapter 9: Acronyms and Abbreviations provides definitions for acronyms and abbreviations used throughout the Draft EIR.

The **Appendices** contain a number of reference items providing support and documentation of the analyses performed for this report.

1.6 SIGNIFICANCE CRITERIA

The significance criteria used in Chapter 4, “Affected Environment, Environmental Consequences, and Mitigation Measures,” to evaluate potential impacts of the project are derived from the questions presented in Appendix G, “Environmental Checklist Form,” of the State CEQA Guidelines.

1.7 DEFINITION OF TERMS

To assist in the understanding of this report, the following definitions, as found in Article 20 of the State CEQA Guidelines, are provided:

- ▲ “Project” means the whole of an action, which has the potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment directly or ultimately.
- ▲ “Significant effect on the environment” means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or

economic change related to a physical change may be considered in determining whether the physical change is significant.

- ▲ “Environment” means the physical conditions that exist within the area which will be affected by a project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance. The area involved shall be the area in which significant effects would occur either directly or indirectly as a result of the project. The “environment” includes both natural and man-made conditions.
- ▲ “Effects” and “impacts,” as used in this document, are synonymous. Effects analyzed under CEQA must be related to a physical change. Effects include:
 - direct or primary effects that are caused by the project and occur at the same time and place, and
 - indirect or secondary effects that are caused by the project and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect or secondary effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems.
- ▲ “Mitigation” includes:
 - avoiding the impact altogether by not taking a certain action or parts of an action;
 - minimizing impacts by limiting the degree or magnitude of the action and its implementation;
 - rectifying the impact by repairing, rehabilitating, or restoring the impacted environment;
 - reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or
 - compensating for the impact by replacing or providing substitute resources or environments.
- ▲ “Cumulative impacts” refers to two or more individual effects that, when considered together, are considerable or which compound or increase other environmental impacts. The cumulative impact is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

This Draft EIR uses a variety of terms to describe the level of significance of adverse impacts identified during the course of the environmental analysis. These terms are defined below.

- ▲ A “less-than-significant impact” is an impact that is adverse but that does not exceed the defined standards of significance. Less-than-significant impacts do not require mitigation.
- ▲ A “significant impact” is an impact that exceeds the defined standards of significance and would or could cause a substantial adverse change in the environment. Mitigation measures are recommended to eliminate the impact or reduce it to a less-than-significant level.
- ▲ A “potentially significant impact” is an impact for which there is not enough information to definitively conclude the impact would be significant, but based on reasonable expectations, the impact is considered significant. A potentially significant impact is equivalent to a significant impact and requires the identification of feasible mitigation measures or alternatives.
- ▲ A “significant and unavoidable impact” is an impact that exceeds the defined standards of significance and cannot be eliminated or reduced to a less-than-significant level through the implementation of mitigation measures.

2 EXECUTIVE SUMMARY

2.1 INTRODUCTION

This Executive Summary is provided in accordance with the California Environmental Quality Act (CEQA) Guidelines Section 15123. As stated in the State CEQA Guidelines Section 15123(a), “[a]n EIR shall contain a brief summary of the proposed actions and its consequences. The language of the summary should be as clear and simple as reasonably practical.” State CEQA Guidelines Section 15123(b) states, “[t]he summary shall identify: (1) each significant effect with proposed mitigation measures and alternatives that would reduce or avoid that effect; (2) areas of controversy known to the Lead Agency, including issues raised by agencies and the public; and (3) issues to be resolved including the choice among alternatives and whether or how to mitigate the significant effects.” Accordingly, this summary includes a brief synopsis of the project and project alternatives, environmental impacts and mitigation, areas of known controversy, and issues to be resolved during environmental review. Table 2-1 (at the end of this section) presents the summary of potential environmental impacts, their level of significance without mitigation measures, the mitigation measures, and the levels of significance following the implementation of mitigation measures.

2.2 PROJECT COMPONENTS

The City of Lincoln is the Lead Agency for the Independence at Lincoln Development Project (project). The project site is located in the City of Lincoln, Placer County.

The project is a proposed master-planned residential community in the City of Lincoln that would include construction of 575 single-family, residential homes on 94.3 acres, 45.6 acres of passive open space and preservation areas, 13.6 acres of active parks including a community center, a 2.7-acre mixed-use area, and three gross acres of public facilities and major roadway areas. A 0.8-acre frontage area surrounding the Western Placer Unified School District bus yard parcel (bus yard parcel), located southwest of the Nicolaus Road/Waverly Drive intersection may be disturbed as part of the project to allow right-of way expansion, if needed, at the intersection. No changes or development activity are proposed within a 35-acre parcel designated as a “Remainder Area” located within the southeastern portion of the project site and south of the tributary to Markham Ravine. A detailed description of the project components is included in Chapter 3, “Project Description,” of this document.

2.3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Pursuant to State CEQA Guidelines Section 15382, a significant effect on the environment is defined as “a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance”. Chapter 4 of this Draft EIR describes in detail the significant environmental impacts that would result from implementation of the project. Chapter 5 provides a discussion of cumulative and growth-inducing impacts. Table 2-1 summarizes the environmental impacts and mitigation measures discussed in these chapters as well as a list of recommended mitigation measures identified in the Initial Study.

2.4 SIGNIFICANT AND UNAVOIDABLE ENVIRONMENTAL IMPACTS

Detailed mitigation measures have been identified in Chapter 1 and throughout Chapter 4 of this report that are intended to mitigate project effects to the extent feasible. All of these mitigation measures are identified in Table 2-1. After implementation of the proposed mitigation measures, nearly all of the adverse effects associated with the project would be reduced to a less-than-significant level.

An impact that remains significant after mitigation is considered an unavoidable adverse impact of the project. Implementation of the project would result in significant and unavoidable impacts in the following resource area:

- ▲ Traffic and Circulation: Impact 4.10-3, Impacts to pedestrian facilities
- ▲ Traffic and Circulation: Impact 4.10-9: Cumulative impacts to Caltrans intersections

2.5 SUMMARY OF PROJECT ALTERNATIVES

State CEQA Guidelines Section 15126.6, as amended, mandates that all EIRs include a comparative evaluation of the project with alternatives to the project that are capable of attaining most of the project's basic objectives, but would avoid or substantially lessen any of the significant effects of the project. CEQA requires an evaluation of a "range of reasonable" alternatives, including the "no project" alternative. For a complete discussion of alternatives, see Chapter 6, "Alternatives to the Project."

Pursuant to Section 15126.6(c) of the State CEQA Guidelines, this draft EIR includes a reasonable range of alternatives to the project that meet most of the objectives of the project and avoid or substantially lessen the identified likely environmental impacts. The following summary describes the alternatives to the project that are evaluated in this draft EIR.

2.5.1 Alternative 1: No Project, No Development

CEQA requires consideration of the No Project alternative, which addresses the impacts associated with not moving forward with the project. The purpose of analyzing the No Project alternative is to allow decision-makers to compare the impacts of the project versus no project. CEQA indicates that in certain instances, the no project alternative means 'no build' wherein the existing environmental setting is maintained. However, where failure to proceed with the project will not result in preservation of existing environmental conditions, the analysis should identify the practical result of the project's non-approval and not create and analyze a set of artificial assumptions that would be required to preserve the existing physical environment." (Section 15126. [e][3][B]). These latter conditions were evaluated above under Section 6.2.2, No Project, General Plan Buildout. Although preservation of the existing undeveloped site condition is considered less likely than future development of the site, examination of the comparative environmental impacts between the project and a "No Project, No Development" scenario is useful. Whereas the Draft EIR focuses on the direct, indirect, and cumulative impacts of the project, the analysis of the No Project, No Development Alternative considers the effects of leaving the project site in its current condition. In general, the site consists primarily of disturbed, non-native grasslands and is traversed by an unnamed tributary to Markham Ravine that runs from the eastern end of the site to the northwestern edge. A soil berm is located along the west and north side of the ravine and the stream corridor is associated with riparian woodlands, freshwater marshes, seasonal wetlands, and black willow thickets. A 35-acre mitigation site is located in the southeast corner of the project site where seasonal wetlands, riparian woodlands, and excavated ponds were created along the stream (Entrix 1991).

2.5.2 Alternative 2: Reduced Development

The Reduced Development Alternative assumes development of the project site would be limited to approximately 96 acres in the western portion of the site (Exhibit 6-1). Development under this Alternative would be the same as the master-planned residential community and amenities proposed under the project but at a smaller scale (i.e., approximately 30% smaller than the project). Under this alternative, it is assumed the eastern portion of the project site and the 35-acre “Remainder Area” would remain undeveloped. Removing proposed development in the eastern portion of the project site and providing the same project at a smaller scale in the western portion of the site would reduce the overall development footprint at the site resulting in less grading and soil disturbance. Overall, less roads, housing units, and infrastructure improvements would be constructed. Similar to the project, the Reduced Development Alternative would include extension of Waverly Drive into the western portion of the project.

2.6 AREAS OF POTENTIAL CONTROVERSY

Section 15123 of the State CEQA Guidelines requires the summary section of a Draft EIR to identify areas of controversy known to the Lead Agency, including issues raised by agencies and the public. The following provides a summary of issues raised through scoping and comments on the Notice of Preparation (NOP) that could be considered controversial. The comment letters received on the NOP are included in Appendix A of this document.

- ▲ Central Valley Regional Water Quality Board permitting requirements;
- ▲ school district capacity to serve project;
- ▲ visual, noise, residential densities, connectivity, parking, and traffic congestion concerns for existing residences in the adjacent Glenmoor subdivision and project area;
- ▲ project compatibility with County’s airport plan and project’s effect on future airport growth; and
- ▲ fiscal analysis of project requested prior to completion of mapping.

Table 2-1 Summary of Impacts and Mitigation Measures			
Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
Mitigation Measures Carried Forward from Project's Initial Study Checklist (December 2015)			
GEOLOGY AND SOILS			
Predominant soils mapped across the project site have a low to moderate susceptibility to erosion. The erosion potential of the soils on or at the near surface of the site are considered low in part because of the clay content of the soils and the generally low relief across the project site (Fugro 2015: 3). Construction would involve soil disturbance, including grading, and excavations. Any portions of the site subject to concentrated runoff, or areas with unprotected piles of bare soil, would be susceptible to erosion. This would be a potentially significant impact.	PS	Refer to Mitigation Measure HYDRO-1 below (Section 4.6, Hydrology and Water Quality)	LTS
The site is underlain by Riverbank Formation which is generally dense to very dense. The potential for an unstable geologic unit or the geologic unit to become unstable as a result of the project is unlikely (Fugro 2015: 3). However, unstable soil conditions at the site consist of observed areas of un-engineered fill and areas where soils have been disturbed by demolition activities. In these areas, the soils could be soft and compressible (Fugro 2015: 3-4). While no specific soil or geologic hazards have been identified on the site, the Placer area is susceptible to ground shaking. This would be a potentially significant impact.	PS	Mitigation Measure GEO-1: To lessen potential damage from strong or violent ground shaking from seismic hazards, before the issuance of permits for the construction of infrastructure and buildings, a geotechnical engineer shall prepare a detailed geotechnical report incorporating the specific mitigation of seismic hazards pursuant to State law, as detailed in the California Building Code, and as required by the City of Lincoln building permit process to ensure that structures and infrastructure can withstand ground accelerations expected from seismic activity. The improvement plans shall incorporate all design and construction criteria specified in the Preliminary Geotechnical Engineering Report (Wallace-Kuhl 2013a) and a detailed geotechnical report that is required before site development. The geotechnical engineer shall require that a note be included on improvement plans that the Civil Engineer of Record certifies that geotechnical engineer's recommendations have been incorporated. The project geotechnical engineer shall provide geotechnical observations during construction, which will allow the geotechnical engineer to compare the actual with the anticipated soil conditions and to check that the contractor's work conforms to the geotechnical aspects of the plans and specifications. The geotechnical engineer of record shall prepare letters and as-built documents, to be submitted to the City, to document their observances during construction and to document that the work performed is in accordance with the project plans and specifications.	LTS
HAZARDS & HAZARDOUS MATERIALS			
In October 2015, Fugro conducted a search of online environmental database resources (Geotracker, Envirositor, and California Integrated Water Quality System	PS	Mitigation Measure HAZ-1: The City shall obtain final regulatory closure certification from the Central Valley	LTS

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Table 2-1 Summary of Impacts and Mitigation Measures

Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
<p>Project (CIWQS)) to determine if the site is still being regulated. There is no indication that the site, which was an active or regulatory controlled site, has been formally closed. The waste water ponds are still shown on the map used by Geotracker and Envirostor; however, there are no links to site details as would be customary for a former wastewater treatment facility. The CIWQS website indicates inspections of the site were conducted by Water Board staff regarding rough grading in Dec 2010 and May 2011, with verbal communication from the Water Board to the City of Lincoln on June 7, 2012. The CIWQS website also indicates that in October 2013, the City of Lincoln was required to operate grading activities under the Construction General Permit 2009-0009-DWQ (Site ID 5S31C371593), which superseded a request from 2010 to operate under permit 5S31C358986 (Fugro 2015a). The regulatory file is anticipated to stay open until decommissioning of the site is completed.</p> <p>During construction activities, construction workers could come in contact with and be exposed to hazards materials present in onsite soils and groundwater. Further, the presence of contaminated soils or groundwater could create a significant public health or environmental hazard if left in place. Decommissioning activities at the project site are still ongoing. Until the City obtains final regulatory closure certification (i.e., demonstrate facility closure in accordance with specifications in the approved closure plan and obtain recommendation for no restrictions to a future residential land use) from Central Valley RWQCB and any other regulatory agency with oversight of the former facility activities on the project site, it is assumed that the potential for people to be exposed to contaminated soil during project construction would be potentially significant.</p>		<p>RWQCB and any other regulatory agency with oversight of the former wastewater facility activities, and implement and document any and all regulatory driven mitigations. The City shall ensure the Board has been provided a copy of all environmental documents requested in the 2013 Phase I and Phase II reports along with any subsequent environmental studies of the site. Best management practices, including but not limited to the following, shall be implemented by the applicant before groundbreaking activities and/or during project construction at the site:</p> <ul style="list-style-type: none"> ▲ All previously completed site-specific studies including Wallace-Kuhl 's October 2013 Preliminary Geotechnical Engineering Report, Phase I, and Phase II Environmental Site Assessment (ESA) reports, shall be submitted to the Central Valley RWQCB for their review and comment. ▲ A Facility Closure Report, documenting the tasks completed, observations made, environmental conditions observed and addressed including those items identified in the 2013 Wallace-Kuhl Phase I report shall be prepared and submitted to the Central Valley RWQCB for their review and comment. ▲ The City shall obtain final regulatory closure certification for the former waste water treatment facility from the Central Valley RWQCB and any other regulatory agency with oversight of the former facility activities, and document the implementation of any and all regulatory driven mitigations. ▲ During site development, the applicant shall ensure the following BMPs are implemented: <ul style="list-style-type: none"> ▼ Develop and implement a Soil Management Plan approved by the Central Valley RWQCB that includes specific measures for: <ul style="list-style-type: none"> - Dust control and minimization of vehicle tracking offsite. - Control of erosion in the area of the Markham Ravine. - Removal of all stockpiled soil, debris piles, and any stained soils. These materials shall not be reused onsite unless the materials are tested and the data is provided to the Central Valley RWQCB for their evaluation, consideration, and approval for reuse. - Removal and documentation sampling/testing of any additionally identified area(s) where facility improvements including but not limited to structures, pipelines, wells, transformers, etc., have been identified during development. Removal and appropriate sampling to be conducted under 	

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Table 2-1 Summary of Impacts and Mitigation Measures			
Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
the oversight of an environmental professional, and will include notification to the regulatory agency.			
Impacts and Mitigation Measures from the Draft Environmental Impact Report			
4.1 Aesthetics			
Impact 4.1-1: Visual character and quality impacts. The change in character of the project site, once developed, would be visually compatible with surrounding existing residential neighborhoods to the north, south, and east. Therefore, the project would not substantially degrade the existing visual character or quality of the site and its surroundings and this impact would be less than significant.	LTS	No mitigation is required.	LTS
Impact 4.1-2: Light and glare impacts. The proposed residential development would include indoor lighting and outdoor lighting for safety purposes. The proposed roadways, parks, and pathways would also include outdoor safety lighting. These new sources of light would be visible from a distance at night. Because the project site is located in an area with substantial, existing suburban development, the new light sources would be consistent with, and blend in with that of surrounding suburban development. Compliance with General Plan Policy LU-1.1.3 would ensure that light and glare created by the project would be the minimum required, and comparable to that of surrounding residential neighborhoods. The impact would be less than significant.	LTS	No mitigation is required.	LTS
4.2 Air Quality			
Impact 4.2-1: Short-term, construction-generated emissions of ROG, NO_x, PM₁₀, and PM_{2.5}. Short-term, construction-generated emissions would not exceed PCAPCD's threshold for ROG or PM ₁₀ ; however, NO _x emissions would exceed PCAPCD's significance threshold during the overlap between grading and utilities construction for Phase 1 and Phase 2 in 2016 and 2017. Thus, short-term construction emissions of criteria air pollutants and precursors could violate or contribute substantially to an existing or projected air quality violation, expose sensitive receptors to substantial pollutant concentrations, and/or conflict with air quality planning efforts. This impact would be significant.	S	Mitigation 4.2-1a: Reduce short-term construction-related NO_x emissions. The project applicant shall comply with the following measures onsite during construction activities to reduce emissions of NO _x : <ul style="list-style-type: none"> ▲ The prime construction contractor shall submit to PCAPCD a comprehensive inventory (e.g., make, model, year, emission rating) of all the heavy-duty off-road equipment (50 horsepower or greater) that would be used for 40 or more hours, in aggregate, during a construction season. If any new equipment is added after submission of the inventory, the prime contractor shall contact PCAPCD before the new equipment is used. At least three business days before the use of subject heavy-duty off-road equipment, the project representative shall provide PCAPCD with the anticipated construction timeline including start date, name, and phone number of the property owner, project manager, and onsite foreman. 	LTS

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Table 2-1 Summary of Impacts and Mitigation Measures			
Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
		<ul style="list-style-type: none"> ▲ Before approval of Grading or Improvement Plans, whichever occurs first, the applicant shall submit for PCAPCD approval, a written calculation demonstrating that the heavy-duty (> 50 horsepower) off-road vehicles to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a project wide fleet-average 20 percent reduction in NOx emissions as compared to ARB statewide fleet average emissions. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available. The calculation shall be provided using PCAPCD's Construction Mitigation Calculator. ▲ During construction the contractor shall use existing power sources (e.g., power poles) or clean fuel (e.g., gasoline, biodiesel, natural gas) generators rather than temporary diesel power generators to the extent feasible. ▲ During construction, the contractor shall minimize idling time to a maximum of five minutes for all diesel powered equipment. ▲ Signs shall be posted in the designated queuing areas of the construction site to remind off-road equipment operators that idling is limited to a maximum of 5 minutes. <p>Mitigation Measure 4.2-1b: Participate in PCAPCD's Land Use Air Quality Mitigation Fund. The applicant shall participate in PCAPCD's offsite mitigation program, the Land Use Air Quality Mitigation Fund, by paying the equivalent amount of fees for the project's contribution of NO_x that exceeds the 82 lbs/day threshold, or the equivalent as approved by PCAPCD. As emissions of NO_x would be higher during the initial stages of project implementation (i.e., 2016 and 2017), participation in PCAPCD's offsite mitigation program would only be necessary to offset NO_x emissions during that period. The applicable fee rates of the program would also change over time. The actual amount to be paid shall be determined, and satisfied per current guidelines, at the time of approval of the Grading or Improvement Plans.</p> <p>Mitigation Measure 4.2-1c: Submit Construction Emission/Dust Control Plan to PCAPCD. Prior to approval of grading or improvement plans for each phase of the project, on sites greater than one acre, the applicant shall submit a Construction Emission/Dust Control Plan to PCAPCD. Construction contractors shall not break ground prior to receiving PCAPCD approval of the Construction Emission/Dust Control Plan, and</p>	

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Table 2-1 Summary of Impacts and Mitigation Measures			
Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
		delivering that approval to the City.	
Impact 4.2-2: Long-term, operation-related (regional) emissions of criteria air pollutants and precursors. Operation of the project under full buildout would not exceed the PCAPCD significance threshold for ROG, NO _x , or PM ₁₀ . Thus, long-term operational emissions of criteria air pollutants and precursors would not violate or contribute substantially to an existing or projected air quality violation, expose sensitive receptors to substantial pollutant concentrations, and/or conflict with air quality planning efforts. This impact would be less than significant.	LTS	No mitigation is required.	LTS
Impact 4.2-3: Mobile-source CO concentrations. Though buildout of the project would result in additional vehicle trips on the surrounding roadway network, project operation would not result in increases in traffic such that quantitative screening criteria for local CO emissions would be triggered. Therefore, the project would not result in increased concentrations of CO that would expose sensitive receptors to unhealthy levels. This impact would be less than significant.	LTS	No mitigation is required.	LTS
Impact 4.2-4: Exposure of sensitive receptors to TACs. Construction-related activities would result in temporary, short-term project-generated emissions of TACs, particularly diesel PM. However, relatively low mass emissions of diesel PM would be generated during the short duration of project construction. Also, TAC-emitting construction activity would not be centralized around any single location on the project site throughout the construction period. For these reasons and the highly dispersive properties of diesel PM before it reaches nearby sensitive receptors, construction-related TAC emissions would not expose sensitive receptors to an incremental increase in cancer risk that exceeds 10 in one million or a hazard index greater than 1.0. TACs associated with long-term operations of the project would also be minimal and limited. Future sensitive receptors introduced as part of the project would not be exposed to incremental health risks greater than PCAPCD-recommended thresholds. Therefore, levels of TACs from project-related construction and operations would not result in health risk exposures at offsite and onsite sensitive receptors. This impact would be less than significant.	LTS	No mitigation is required.	LTS
Impact 4.2-5: Exposure of sensitive receptors to odors. The project would introduce new odor sources into the area (e.g., diesel exhaust emissions from delivery trucks). However, these types of odor sources would be limited and infrequent because of the types of uses proposed (i.e., residential). Moreover, these types of odor sources already operate in and near the project area and do not result in odor complaints. Also, the project would not locate land uses in close proximity to any existing odor sources. The sewer lift station would be placed underground or enclosed to control odors. This impact would be less than significant.	LTS	No mitigation is required.	LTS

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Table 2-1 Summary of Impacts and Mitigation Measures			
Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
4.3 Greenhouse Gas Emissions			
Impact 4.3-1: Construction-generated greenhouse gas emissions. Construction-generated GHG emissions would not exceed PCAPCD's recommended GHG emissions threshold. Therefore, GHG emissions from project-related construction would not be substantial. This impact would be less than significant.	LTS	No mitigation is required.	LTS
Impact 4.3-2: Operational greenhouse gas emissions. While GHGs associated with operation of the project would exceed the Tier I mass-emission threshold of 1,100 MT CO ₂ e/year, operational GHGs would not exceed the GHG efficiency metric threshold developed for the project based on statewide reduction targets for 2020. Further, the project would be consistent with SACOG's MTP/SCS which sets GHG reduction targets through 2036. This impact would be less than significant.	LTS	No mitigation is required.	LTS
Impact 4.3-3: Impacts of climate change on the project. Climate change is projected to result in a variety of effects that would influence conditions in the project area including increased temperatures, leading to increased wildfire risk; and changes to timing and intensity of precipitation, resulting in increased stormwater runoff and flood risk. However, there are numerous programs and policies in place to protect against and respond to wildfire. This impact would be less than significant.	LTS	No mitigation is required.	LTS
4.4 Biological Resources			
Impact 4.4-1: Impacts to wetlands, riparian habitat, and other waters. Based on site development plans, construction of the project would avoid fill of waters of the United States, effects to wetlands, and effects to waters of the state through implementation of best management practices (BMPs) and a storm water pollution prevention plan (SWPPP). No wetlands or riparian land cover would be directly affected by the project. Bridge construction and creek crossing upgrades at Street 7 and 18 are the only work that would occur within the creek corridor on the project site, but would occur outside of the OHWM and outside of CDFW Section 1602 jurisdictional areas. This would be a less-than-significant impact.	LTS	No mitigation is required.	LTS
Impact 4.4-2: Impacts to Swainson's hawk, white-tailed kite, burrowing owl, and other nesting raptors. Implementation of the project could disturb nesting Swainson's hawk, white-tailed kite, burrowing owl, and other nesting raptors, potentially resulting in their abandonment, failure, and/or mortality of chicks and eggs. Individual mortality and loss of nests would be a potentially significant impact.	PS	Mitigation 4.4-2: Impacts to Swainson's hawk, white-tailed kite, burrowing owl, and other nesting raptors. Tree-nesting raptors (including Swainson's hawk and white-tailed kite): ▲ If removal of a known nest tree is required, it shall be removed when no active nests are present, generally between October 1 and February 1.	LTS

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Table 2-1 Summary of Impacts and Mitigation Measures			
Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
		<ul style="list-style-type: none"> ▲ If project activity would commence between February 2nd and September 30th, a qualified biologist shall be retained to conduct preconstruction surveys for active nests in suitable habitat on and within 0.25 mile of the project site no more than 14 days and no less than seven days before commencement of construction. If this survey does not identify any nesting raptors in the area within the project site that would be disturbed plus the 0.25-mile radius, no further mitigation would be required. ▲ If an occupied nest is present, CDFW guidelines recommend implementation of a 0.25- mile buffer for Swainson's hawk (CDFG 1994) and 500 feet for other tree-nesting raptors, but the size of the buffer may be adjusted if a qualified biologist and CDFW determine that it would not be likely to adversely affect the nest. No project activity shall commence within the buffer area until a qualified biologist confirms that the nest is no longer active or that the young have fully fledged. Monitoring of the nest by a qualified biologist shall be required if the activity has potential to adversely affect the nest. For Swainson's hawks, no intensive new disturbances or other project-related activities that could cause nest abandonment or forced fledging, shall be initiated within the ¼-mile (buffer zone) of an active nest between March 1 - September 15 (CDFG 1994). <p>Burrowing owl:</p> <ul style="list-style-type: none"> ▲ A qualified biologist shall be retained to conduct focused breeding and nonbreeding season surveys for burrowing owls in areas of suitable habitat on and within 150 meters of project activities. Surveys shall be conducted prior to the start of construction activities during breeding season. Surveys shall be conducted before project activity following updated survey guidelines (CDFG 2012). ▲ During the breeding season (February 1 through August 31) occupied burrows shall not be disturbed. The development of a protective buffer shall be supported by a qualified biologist. The protective buffer shall be informed by monitoring the burrowing owls sensitivity and shall be put in place to prevent burrow destruction and disturbance to nest sites (including nest abandonment and loss of eggs or young). The 2012 CDFG Staff report identifies variables to consider for the buffer such as habitual disturbances (visual and audible), existing vegetation, and type and extent of disturbance and impact. The staff report gives general guidelines for buffers during the breeding season. It recommends that, at minimum, the protective buffer during the breeding season be 200 meters; moving up to 500 meters for high levels of disturbance. These guidelines shall be followed. If 	

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Table 2-1 Summary of Impacts and Mitigation Measures			
Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
		<p>activities are allowed closer than these recommended setback distances, then a broad-scale, long-term, scientifically-rigorous monitoring program that ensures that the owls are not detrimentally affected by the alternative approach shall be conducted. The protective buffer shall remain until the end of the breeding season unless a qualified biologist approved by the permitting agencies verifies through non-invasive means that either: 1) the birds have not begun egg-laying, or 2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. Once the fledglings are capable of independent survival, the burrow can be destroyed.</p> <p>▲ If occupied burrows cannot be avoided, burrowing owls occupying the project site shall be evicted from the project site during the non-breeding season (September 1 through January 31) by passive relocation to encourage owls to move to alternative burrows outside of the disturbance area. A Passive Relocation Plan shall be prepared as described in the CDFG Staff Report on Burrowing Owls (2012). No passive relocation shall occur until CDFW approves the plan. No occupied burrows found by the survey shall be disturbed during the breeding season. After burrowing owls have been confirmed absent or removed from the site, the burrows may be destroyed.</p>	
<p>Impact 4.4-3: Direct loss or disturbance of special-status bird (non-raptor) nests. Vegetation clearing and other construction activities for the project could result in the loss of individuals or nests, or disruptions to nesting attempts of tricolored blackbird and other special-status bird species if active nests are present during construction. The potential disturbance or loss of tricolored blackbird and other special-status bird nests would be potentially significant.</p>	PS	<p>Mitigation 4.4-3: Direct loss or disturbance of special-status bird (non-raptor) nests.</p> <p>a. To the extent feasible, construction-related vegetation removal shall occur before the nesting season (February 15 – September 15). If vegetation removal or other disturbance related to construction is required during the nesting season, focused surveys for active nests of special-status birds shall be conducted before and within 14 days of initiating construction. A qualified biologist shall conduct preconstruction surveys to identify active nests that could be affected. The appropriate area to be surveyed and timing of the survey may vary depending on the activity and species that could be affected. If no active nests are found during focused surveys, no further mitigation shall be required.</p> <p>b. Should any active tricolor blackbird colonies or other special-status bird be found nesting on the project site, the project applicant, in consultation with the City and CDFW, shall avoid all active colony and nest sites while the nest is occupied with adults and/or young. This avoidance could consist of delaying construction to avoid the nesting season or establishing a buffer around the colony or nest site. If the construction cannot be delayed, avoidance shall include the establishment of a non-disturbance buffer zone around the colony site. The size of the buffer zone shall be</p>	LTS

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Table 2-1 Summary of Impacts and Mitigation Measures			
Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
		determined in consultation with the City and CDFW, and shall be, at a minimum, 100 feet. The buffer zone shall be delineated by highly visible temporary construction fencing. Any occupied nest shall be monitored by a qualified biologist to determine when the nest is no longer used.	
Impact 4.4-4: Direct loss or disturbance of western pond turtles. Implementation of the project would avoid construction activities in aquatic habitat. Conversion of upland habitat would not result in a substantial loss of nesting habitat for western pond turtle because most grassland adjacent to the creek would be preserved as open space. Much of the uplands on site are not suitable for pond turtle nests because they contain gravel, cobble, and other fill material, due to the former use as a wastewater treatment plant. Impacts to western pond turtle would be less-than-significant.	LTS	No mitigation is required.	LTS
Impact 4.4-5: Loss or lethal damage of protected native oak trees. Removal or irrevocable, lethal damage to a protected native oak trees requires a tree permit by the City under their Oak Tree Preservation Ordinance (Ord. 459B §1, City of Lincoln 1984). Oak woodlands are protected under the state Oak Woodland Conservation Act because of their value to native wildlife and biodiversity in the state. Construction of residential lots, the proposed Street 18 bridge construction, and the road widening on Nicolaus Road could remove or lethally damage individual protected native oak trees on or adjacent to the project site. The potential for construction to adversely affect native oak trees and woodlands, and conflict with local and state ordinances protecting them, would result in a significant impact.	S	<p>Mitigation 4.4-5: Loss or lethal damage of protected native oak trees.</p> <p>To reduce the loss of protected native oak trees, the applicant shall comply with all conditions of project approval and any City guidelines for protected native oak trees and as stated in City of Lincoln Department of Public Works Design Criteria and Procedures Manual (City of Lincoln 2004). The condition for project approval and a tree permit may include:</p> <ul style="list-style-type: none"> ▲ Submission of grading plans for an approved grading permit in conformance with the Tree Permit Conditions. Grading plans shall show all existing trees (greater than six inches in diameter at base), the protected zone of any protected trees, and shall show approved protective fencing locations. Encroachments into the protected zone would require a tree permit. ▲ Tree Permit conditions may include, but not be limited to: <ul style="list-style-type: none"> ▼ trenching within the protected zone of a protected tree, when permitted, may only be conducted with hand tools to avoid root damage; ▼ minor roots less than one inch in diameter may be cut, but damaged roots shall be traced back and cleanly cut behind any split, cracked or damaged area; ▼ major roots over one inch in diameter may not be cut without approval of an arborist; ▼ if any native ground surface fabric within the protected zone must be removed for any reason, it shall be protected within 48 hours; ▼ an independent low-flow drip irrigation system may be used for 	LTS

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Table 2-1 Summary of Impacts and Mitigation Measures			
Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
		<p>establishing drought-tolerant plants within the protected zone of a protected tree; irrigation shall be gradually reduced and discontinued after two years;</p> <ul style="list-style-type: none"> ▶ planting live material under native oak trees shall not be permitted within six feet of the trunk of a native oak tree with a diameter breast height (dbh) of 18 inches or less, or within 10 feet of the trunk of a native oak tree with a dbh of more than 18 inches. Only drought tolerant plants shall be permitted within the protected zone of native oak trees; ▶ a minimum 4-foot high chain link or orange mesh fence shall be installed at the outermost edge of the protected zone of each protected tree or group of protected trees. Signs must be installed on the fence in four locations (equidistant) around each individual protected tree. The size of each sign must be a minimum of two feet by two feet and state, "Warning: This fence shall not be removed or relocated without written authorization from the Planning Department." Fences shall not be removed without written authorization from the City Planning Department; ▶ a minimum \$10,000 deposit or amount deemed necessary by the approving body shall be posted and maintained to insure the preservation of protected trees during construction. Each violation of any tree permit condition regarding preservation shall result in forfeiture of a portion or the entirety of the deposit; ▶ if required, preservation devices such as aeration systems, oak tree wells, drains, special paving and cabling systems must be installed per approved plans and certified by a developer's arborist; ▶ avoidance of cut and/or fill slopes within the protected zone of any tree; ▶ no grade changes which would cause water to drain to within twice the longest radius of the protected zone of any protected tree; ▶ certification letters are required for all regulated activity conducted within the protected zone of protected trees; ▶ as a condition of the tree permit, the applicant shall be required to submit a utility trenching-pathway plan for approval following approval of the project improvement plans. <p>If protected native oak trees are removed in violation of conditions of project approval, the City may require one or more of the following:</p>	

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Table 2-1 Summary of Impacts and Mitigation Measures			
Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
		<ul style="list-style-type: none"> ▲ Replacement of oak tree(s) removed or irrevocably harmed in violation of the conditions of project approval by planting replacement specimen trees of no less than 15 gallons in size, having a total combined diameter at the time of planting equal to the diameter of the removed tree(s). ▲ If the project site is not capable of supporting all the required replacement trees, a fee shall be paid to the City equal to the retail costs at the time of the violation of the replacement trees. ▲ In addition to the above requirements, the City may impose another penalty for failure to comply with conditions of project approval. <p>To protect native oak woodlands and compensate for removal, the developer shall:</p> <ul style="list-style-type: none"> ▲ avoid direct impacts to all oak woodlands to the maximum extent practicable; ▲ implement construction tree permit conditions listed above within 50 feet of all valley oak woodlands on and adjacent to the project site; ▲ replace oak woodlands on-site with preserves of like habitat at the minimum 1.5:1 ratio for affected canopy area; ▲ create a detailed planting and monitoring plan that is approved by the City and CDFW; and ▲ a minimum of 80percent survival of all planted trees shall be required within 5 years of planting to ensure that the replanting is successful. 	
Impact 4.4-6: Disturbance or loss of special-status plants. Freshwater marsh habitat within the open space preserve may provide suitable habitat for special-status plants. Implementation of the project would not result in construction activities that would remove freshwater marsh habitat and the applicant would be required to prepare and implement a SWPPP and BMPs to prevent indirect erosion impacts. Because impacts to special-status plant species would be avoided, this would be a less-than-significant impact.	LTS	No mitigation is required.	LTS
Impact 4.4-7: Disturbance or loss to hardhead minnow individuals or habitat. Markham Ravine and its tributary are considered suitable habitat and potentially occupied by the hardhead minnow (Santos 2014). The implementation of a SWPPP and BMPs as required by the City for development projects would prevent soil erosion from affecting water quality or spawning habitat. No riparian habitat or waters would be filled or removed with implementation of the project. Further, the applicant would be required to prepare and implement a SWPPP and BMPs to prevent indirect erosion impacts from construction activities. Thus, there would be no changes to turbidity, water temperature, or water quality as the result of project. Impacts to hardhead minnow would be less than significant.	LTS	No mitigation is required.	LTS

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Table 2-1 Summary of Impacts and Mitigation Measures			
Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
4.5 Cultural Resources			
<p>Impact 4.5-1: Damage to or destruction of previously undiscovered cultural resources. Subsurface disturbances could potentially destroy or damage as-yet undiscovered prehistoric or historic cultural resources. Newly discovered cultural resources could be eligible for listing in the NRHP or CRHR or be unique archaeological resources and could be adversely affected during project construction. This impact would be potentially significant.</p>	PS	<p>Mitigation Measure 4.5-1: Damage to or destruction of previously undiscovered cultural resources. If cultural resources are discovered during project-related construction activities, all ground disturbances within a minimum of 50 feet of the find shall be halted until a qualified professional archaeologist can evaluate the discovery. The archaeologist shall examine the resources, assess their significance, and recommend appropriate procedures to the lead agency to either further investigate or mitigate adverse impacts (e.g., adverse effect on a significant historical resource). If the find is determined to be a significant historical resource and the archaeological resource cannot be avoided, then applicable mitigation measures for significant resources shall be completed (e.g., preservation in place, data recovery program pursuant to PRC §21083.2[i]). During evaluation or mitigative treatment, ground disturbance and construction work could continue on other parts of the project site.</p>	LTS
<p>Impact 4.5-2: Impacts to undocumented human remains. Although there is a low potential for human remains to be discovered during ground disturbance for the project, construction activities could potentially uncover or disturb unanticipated discoveries of human remains, including those interred outside of formal cemeteries. This would be a potentially significant impact.</p>	PS	<p>Mitigation Measure 4.5-2: Impacts to undocumented human remains. If human remains are discovered during project ground-disturbing activities, all work within a minimum of 50 feet of the discovery site shall halt immediately. The lead agency shall notify the County Coroner, as stipulated in Section 7050.5 of the California Health and Safety Code. The Coroner shall determine whether the remains are Native American and, if so, shall contact the Native American Heritage Commission by telephone within 24 hours. The Commission shall follow the stipulations in Section 5097.98 of the California Public Resources Code, including determination of a most likely descendant. If the Commission is unable to identify a descendant, the descendant is unable to make a recommendation, or the landowner rejects the recommendation, the Commission shall mediate any dispute between the parties. Where such mediation fails to provide measures acceptable to the landowner, the landowner shall reinter the human remains and associated funerary items with appropriate dignity on the property, in a location not subject to further subsurface disturbance.</p>	LTS
<p>Impact 4.5-3: Impacts to undocumented paleontological resources. Due to the known presence of paleontological resources in the region, construction activities in the Riverbank Formation geologic unit have the potential to disturb or destroy newly discovered paleontological resources. This would be a potentially significant impact.</p>	PS	<p>Mitigation Measure 4.5-3: Impacts to undocumented paleontological resources. Prior to construction, the lead agency shall implement sampling of native soil/sediment at trenchless drilling locations to determine the depth of potential paleontological resources. If no paleontological resources are identified, the trenchless drilling may</p>	LTS

LTS = Less than significant, PS = Potentially significant, S = Significant, SU = Significant and unavoidable

Table 2-1 Summary of Impacts and Mitigation Measures			
Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
		<p>proceed. If fossils or other paleontological resources are encountered during the sampling or construction, all work shall be halted within a 50-foot radius of the find and a qualified paleontologist shall be contacted to examine the find and evaluate its significance. If the find is deemed to have significant scientific value, the paleontologist and the lead agency shall formulate a plan to either avoid impacts or to continue construction without disturbing the integrity of the find (e.g., by carefully excavating the material containing the resources under the direction of the paleontologist followed by routine conservation, laboratory preparation, and curation). Recommendations determined by the lead agency to be necessary and feasible shall be implemented before construction activities can resume at the place where the paleontological resources were discovered.</p>	
<p>Impact 4.5-4: Impacts to undocumented tribal cultural resources. Subsurface disturbances could potentially destroy or damage as-yet undiscovered tribal cultural resources. Newly discovered cultural resources could be recognized as tribal cultural resources and could be adversely affected during project construction. This impact would be potentially significant.</p>	PS	<p>Mitigation Measure 4.5-4: Impacts to undocumented tribal cultural resources. If cultural resources are discovered during project-related construction activities, all ground disturbances within a minimum of 50 feet of the find shall be halted until a qualified professional archaeologist can evaluate the discovery. The archaeologist shall examine the resources, assess their significance, and recommend appropriate procedures to the lead agency to either further investigate or mitigate adverse impacts. If the find is determined by the lead agency in consultation with the Native American tribe traditionally and culturally affiliated with the geographic area of the project site to be a tribal cultural resource and the discovered archaeological resource cannot be avoided, then applicable mitigation measures for the resource shall be discussed with the geographically affiliated tribe. Applicable mitigation measures that also take into account the cultural values and meaning of the discovered tribal cultural resource, including confidentiality if requested by the tribe, shall be completed (e.g., preservation in place, data recovery program pursuant to PRC §21083.2[i]). During evaluation or mitigative treatment, ground disturbance and construction work could continue on other parts of the project site.</p>	LTS
4.6 Hydrology and Water Quality			
<p>Impact 4.6-1: Short-term construction-related water quality degradation. Project construction activities would involve extensive grading and movement of soil, which could result in erosion and sedimentation, and discharge of other nonpoint source pollutants in onsite stormwater that could then drain to offsite areas and degrade local water quality. To avoid or minimize the potential for adverse construction-related</p>	PS	<p>Mitigation Measure 4.6-1: Short-term construction-related water quality degradation. The applicant shall prepare a SWPPP, which must identify BMPs that will protect water quality from polluted stormwater runoff. These BMPs may include:</p> <ul style="list-style-type: none"> ▲ Desilting basin and sediment trap: Construction of temporary basin designed to remove sediment from runoff would prevent constituents from reaching existing on- and offsite drainages by allowing sediment to settle before discharging water to 	LTS

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Table 2-1 Summary of Impacts and Mitigation Measures			
Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
<p>effects on water quality, the project would be required to comply with Central Valley RWQCB and City and County regulations that protect water quality and minimize erosion. However, because construction activities have the potential for soil erosion that could affect water quality, this impact would be potentially significant.</p>		<p>natural drainages.</p> <ul style="list-style-type: none"> ▲ Erosion control blankets/mats, geotextiles, plastic covers: These erosion control methods would be used on flat or sloped surfaces to keep soil in place and can be used to cover disturbed soil to prevent runoff. ▲ Gravel/sandbag barrier: A temporary sediment barrier could be constructed using gravel or sand filled bags to prevent sediment from disturbed areas from reaching existing drainages by reducing the volume of sheet flows. ▲ Hydraulic, straw, and wood mulch: The use of these various mulches temporarily stabilizes soil on surfaces with little or no slope. ▲ Preservation of existing vegetation: Preserving the existing vegetation to the maximum extent possible provides protection of exposed surfaces from erosion and can keep sediment in place. Sensitive areas defined in Section 4.4, "Biological Resources," would be clearly indicated and protected during and after construction. ▲ Runoff control BMPs: These measures include grading surfaces to control sheet flow, barriers or berms that force sheet flows around protected areas, and stormwater conveyances such as channels, drains, and swales. These practices and features collect runoff and redirect it to prevent contamination to surface waters. Calculations would be made for anticipated runoff, and the stormwater conveyances will be constructed, designed, and located to accommodate these flows. ▲ Scheduling and planning: Appropriate scheduling and planning provide ways to minimize disturbed areas, which reduces the amount of activity in the area that requires protection and minimizes the duration of exposure of disturbed soils to erosion. ▲ Stabilized construction entrance/exit: A graveled area or pad located at points where vehicles enter and leave a construction site can be built. This BMP provides a buffer area where vehicles can drop their mud and sediment to avoid transporting it onto public roads, to control erosion from surface runoff and to help control dust. ▲ Storm drain inlet protection: Protection consists of devices and procedures that detain or filter sediment from runoff, thereby preventing them from reaching drainage systems that would be used post-construction, as well as surface waters. <p>In addition to preparing a SWPPP, the project applicant shall demonstrate its compliance with the City of Lincoln's SWMP and Design Criteria & Procedures Manual, and Placer County's SMM.</p>	

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Table 2-1 Summary of Impacts and Mitigation Measures			
Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
Impact 4.6-2: Impacts to stormwater drainage systems. The project would add additional impervious surfaces at the project site, which would increase surface runoff on an ongoing basis. This increase could result in an increase in both the total volume and the peak discharge rate of stormwater runoff; however, the drainage study conducted for the project concluded that post-project peak runoff and water quality volume would be reduced to pre-project conditions through the use of detention basins. Therefore, this impact would be less than significant.	LTS	No mitigation is required.	LTS
Impact 4.6-3: Long-term water quality degradation. The conversion of undeveloped land to urban uses would alter the types, quantities, and timing of contaminant discharges in stormwater runoff. Overall, the potential for the project to cause or contribute to long-term discharges of urban contaminants (e.g., oil and grease, trace metals and organics, trash) into the stormwater drainage system could increase compared with existing conditions if the system is not properly designed. However, the project would comply with federal, State, City, and County stormwater guidelines. Therefore, this impact would be less than significant.	LTS	No mitigation is required.	LTS
Impact 4.6-4: Depletion of groundwater or interference with groundwater recharge. The project would be served by the City’s municipal water system. In addition, the water features onsite would remain undisturbed and a significant portion of the site would remain as open space that would continue to allow infiltration. Therefore, the project would not result in the substantial depletion of groundwater or interference with groundwater recharge and this impact would be less than significant.	LTS	No mitigation is required.	LTS
Impact 4.6-5: Flood hazards. The project site is traversed by Markham Ravine lower tributary, which is a designated FEMA 100-year flood zone area. In addition, the preliminary FIRMs for the Placer region currently designate both Markham Ravine and the Markham Ravine Tributary as Regulated Floodways (Placer County 2016). While no housing is proposed within a 100-year flood zone area, a new culvert and bridge is proposed within the Markham Ravine 100-year flood zone. However, the bridge would be designed to comply with applicable City and County flood hazard design requirements, including the City Floodplain Ordinance. Therefore, the project would not result in flood hazards and this impact would be less than significant.	LTS	No mitigation is required.	LTS

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Table 2-1 Summary of Impacts and Mitigation Measures			
Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
4.7 Noise			
<p>Impact 4.7-1: Construction noise impacts. Worst-case construction-related activities could result in noise levels of up to 91 dBA L_{eq} and 95 dBA L_{max} at 50 feet from the acoustical center of the construction site. Existing sensitive receptors are located within 50 feet to the north and to the east of the project site where construction activities could take place. Given the 3-year timeframe of construction, the relatively high noise levels associated with construction activities, and the close proximity of existing residences to construction activities, project-generated construction activities could result in substantial temporary increases in noise. This would be a potentially significant impact.</p>	PS	<p>Mitigation Measure 4.7-1: Construction noise impacts. To minimize noise levels during construction activities, construction contractors shall comply with the following measures during construction:</p> <ul style="list-style-type: none"> ▲ All construction equipment and equipment staging areas shall be located as far as possible from nearby noise-sensitive land uses. ▲ All construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation. ▲ All construction equipment with back-up alarms shall be equipped with either audible self-adjusting backup alarms or alarms that only sound when an object is detected. The self-adjusting backup alarms shall automatically adjust to 5 dBA over the surrounding background levels. All non self-adjusting backup alarms shall be set to the lowest setting required to be audible above the surrounding noise levels. In addition to the use of backup alarms, the construction contractor shall consider other techniques such as observers and the scheduling of construction activities such that alarm noise is minimized. ▲ When future noise sensitive uses are within close proximity to prolonged construction noise, noise attenuating buffers such as structures, truck trailers, temporary noise curtains or sound walls, or soil piles shall be located between noise sources and the receptor to shield sensitive receptors from construction noise. 	LTS
<p>Impact 4.7-2: Short-term construction vibration impacts. No blasting or pile driving is proposed and, therefore, maximum vibration levels would be associated with the use of graders and jack and bore activities during site preparation/utility installation. Based on reference vibration levels for these types of activities, no existing nearby structures would be exposed to vibration levels that could cause structural damage. Further, vibration-generating activities would occur during the less sensitive times of the day, would be intermittent, and would not occur in the same locations for extended periods of time and therefore would not result in sleep disturbance or annoyance to nearby residence. This impact would be less than significant.</p>	LTS	No mitigation is required.	LTS

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Table 2-1 Summary of Impacts and Mitigation Measures			
Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
Impact 4.7-3: Exposure of new sensitive receptors to existing noise levels. The project would result in the placement of new sensitive land uses, such as residences, in proximity to existing noise sources; including the Lincoln Regional Airport, the Sierra Pacific Lumber Mill, and traffic-noise on nearby roads. Proposed land uses would be consistent with the Lincoln Regional Airport Land Use Compatibility Map and aircraft noise would not exceed applicable interior noise standards of 65 dBA SEL. Operations at the nearby Sierra Pacific Lumber Mill would not exceed City of Lincoln noise limits for sensitive receptors on the project site, and existing noise levels are below maximum allowable standards of 60 dBA CNEL (exterior) and 45 dBA CNEL (interior). This impact would be less than significant.	LTS	No mitigation is required.	LTS
Impact 4.7-4: Project-generated operational traffic-noise. Implementation of the project would not result in substantial traffic-noise increases. Project-generated traffic increases would result in a maximum 32 percent increase in local traffic volumes which would not result in a doubling of existing traffic volumes. Thus, long-term traffic-generated noise increases would not be perceptible (i.e., increases would be less than 3 dB). This impact would be less than significant.	LTS	No mitigation is required.	LTS
4.8 Utilities			
Impact 4.8-1: Directly or indirectly induce substantial population growth during construction. During the 36-month construction period, the project would require up to 163 workers during peak construction. Because the project site is located in an urban area with a substantial construction workforce, it is expected that workers would be drawn from the local labor pool and that a sufficient number of construction workers are available in the county and adjacent communities to meet this demand. Furthermore, even if some construction workers from outside the region were employed at the project site, construction workers typically do not change residences when assigned to a new construction site, and substantial permanent relocation of workers to the area is not anticipated. This impact would be less than significant.	LTS	No mitigation is required.	LTS
Impact 4.8-2: Directly or indirectly induce substantial population growth during operation. The project is not currently zoned for residential uses, although portions of the project are designated for residential uses in the City General Plan. Implementation of the project would include redesignation and rezoning of the project site. The project would not result in indirect population growth from removal of obstacles to growth or new job opportunities as the site is located adjacent to existing residential subdivisions	LTS	No mitigation is required.	LTS

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Table 2-1 Summary of Impacts and Mitigation Measures			
Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
and in close proximity to commercial and retail facilities. Population growth would be associated with the construction of 575 new single-family units; however, population growth resulting from this project would not be considered substantial compared to the City-wide population and future planned growth. This impact would be less than significant.			
4.9 Public Utilities, Services, and Water Supply			
Impact 4.9-1: Increased demand for potable and irrigation water. Through a combination of surface and groundwater supplies, adequate water supplies would be available to meet the project's demands and all other demands within the City during all water year types through 2040. While additional water supply infrastructure has been identified to meet the City's growth and water demand projections, PCWA and the City are on-track with planning and implementation of surface water agreements and infrastructure projects to ensure adequate water supplies and distribution infrastructure are commissioned in advance of need. With planned expansion of surface water infrastructure, groundwater would be used to meet no more than 10 percent of the project's annual water demands during normal years and consistent with City goals. Furthermore, as a condition of approval for project tentative maps, the City shall require written verification demonstrating that there is sufficient water supply as required by Government Code Section 66473.7(a)(1), The applicant's payment of development impact fees would also fund the project contribution to the need for planned water infrastructure improvements. Therefore, because adequate supplies and infrastructure are available, the project's increased demand for potable and irrigation water would be less than significant.	LTS	No mitigation is required.	LTS
Impact 4.9-2: Increased demand for wastewater collection, conveyance, and treatment. The wastewater generated by the project would not exceed the current capacity of the WWTRF, and the project applicants would be required to pay applicable assessment fees toward operation and maintenance of the WWTRF. This would be a less-than-significant impact.	LTS	No mitigation is required.	LTS
Impact 4.9-3: Generation of solid waste that exceeds the capacity of the Western Regional Sanitary Landfill. While solid waste would be generated during construction and operation of the project, the WRS� has sufficient capacity to serve the proposed development. This impact would be less than significant.	LTS	No mitigation is required.	LTS

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Table 2-1 Summary of Impacts and Mitigation Measures			
Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
Impact 4.9-4: Result in inefficient and wasteful consumption of energy. Although construction and operation of the project would result in the consumption of energy, energy use would not be inefficient or wasteful when compared to similar projects in the State. Standard construction practices and compliance with 2016 Title 24 energy efficiency standards, coupled with project design and location would be sufficient to ensure that the potential for inefficient or wasteful consumption of energy would not occur and this impact would be less than significant.	LTS	No mitigation is required.	LTS
Impact 4.9-5: Result in the need for expanded school facilities. The project would generate an estimated 333 new students, which would exceed the capacity of existing schools. The project applicant and/or developer(s) would be required to contribute funding to school facilities pursuant to the Leroy F. Greene School Facilities Act. Payment of such fees is considered sufficient to avoid a significant impact under CEQA. Therefore, this impact would be less than significant.	LTS	No mitigation is required.	LTS
Impact 4.9-6: Increased demand for fire protection and emergency medical services. The project would include development which would increase demand for fire protection and emergency medical services. The applicant would be required to pay applicable City development fees to pay for the project's fair share of existing facilities and anticipated need for two additional firefighters. In addition, the project would generate increased tax revenues, which could be used to fund additional personnel and existing facilities. The impact of project-generated demand for fire protection and emergency medical service would be less than significant.	LTS	No mitigation is required.	LTS
Impact 4.9-7: Increase the need for police protection services. The project is anticipated to result in additional demand for police services. Taxes and fees levied on the project would provide the City with the means to offset the increased demand for law enforcement services created by the project. In addition, the applicant would be required to pay applicable City development fees to pay for the project's fair share of anticipated need for up to three additional police officers. This would be a less-than-significant impact.	LTS	No mitigation is required.	LTS
4.10 Traffic and Transportation			
Impact 4.10-1: Impacts to City of Lincoln intersections. The project would not cause any of the study intersection to deteriorate to an unacceptable LOS. Therefore, the project's intersection impacts would be less than significant.	LTS	No mitigation is required.	LTS

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Table 2-1 Summary of Impacts and Mitigation Measures			
Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
Impact 4.10-2: Impacts to Caltrans intersections. The project would not cause the SR 65/Nelson Lane intersection to deteriorate to an unacceptable LOS. Therefore, the project's impacts to Caltrans intersections would be less than significant.	LTS	No mitigation is required.	LTS
Impact 4.10-3: Impacts to pedestrian facilities. The project would create a demand for pedestrian travel above the capacity which is provided or planned. This would be a significant impact.	S	<p>Mitigation Measure 4.10-3: Impacts to pedestrian facilities. Prior to grading of the site, the project applicant shall demonstrate to the City's satisfaction that it has coordinated with Western Placer Unified School District to investigate, design, and if feasible, construct a sidewalk that would extend along the south side of Nicolaus Road west of Waverly Drive along the frontage of the Western Placer Unified School District bus yard. Construction of a sidewalk in this area appears feasible based on the 10- to 15-foot setback of the bus yard from Nicolaus Road. No sensitive habitats are located along this frontage alignment. However, this area has some changes in grades, which could pose challenges to constructing a sidewalk. Further, this alignment is subject to the control of Western Placer Unified School District and not subject to the control of the City. Nonetheless, the construction-related impacts of constructing this sidewalk have been evaluated throughout this EIR and no new significant impacts would occur with its construction.</p> <p><i>Significance after Mitigation</i> Due to the uncertainty regarding the feasibility of construction of this improvement (based on unknown right-of-way availability and physical constraints such as grade), it cannot be concluded at this time that this mitigation measure would reduce this impact to a less-than-significant level. If this mitigation were implemented, the impact would be reduced to less than significant; however, this impact is considered significant and unavoidable at this time recognizing the potential uncertainty surrounding its implementation. No additional feasible mitigation is available.</p>	SU
Impact 4.10-4: Impacts to bicycle facilities. The project would not create inconsistencies with any adopted policies related to bicycle systems or any plan bicycle system improvements. This would be a less-than-significant impact.	LTS	No mitigation is required.	LTS
Impact 4.10-5: Impacts to transit facilities. The project would create a demand for transit above the capacity which is provided or planned. This would be a significant impact.	SU	<p>Mitigation Measure 4.10-5: Impacts to transit facilities. The project applicant shall design and construct bus turnouts and shelters on arterials as required by the City and Placer County Transit. All shelters, types, and locations shall be approved by the City Engineer and Community Development Department during the review and approval of Improvement Plans.</p>	LTS

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Table 2-1 Summary of Impacts and Mitigation Measures			
Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
Impact 4.10-6: Impacts to emergency vehicle access, evacuation, and circulation. The project would provide adequate emergency vehicle access to and from the project site and internal circulation consistent with the City and County policies and standards. This impact would be less than significant.	LTS	No mitigation is required.	LTS
Impact 4.10-7: Construction impacts. The project could result in temporary impacts to transportation facilities including closed or partially blocked roadways, heavy vehicle and truck traffic, and potential damage to roadbeds. This would be a significant impact.	S	<p>Mitigation Measure 4.10-7: Construction impacts.</p> <p>Prior to issuance of a grading permit, the project applicant shall develop a Construction Traffic Management Plan (TMP) that adheres to various performance standards describe below.</p> <p>▲ Prior to the beginning of construction for each project phase, the project applicant shall develop a Construction TMP to the satisfaction of the City’s Department of Public Works, in coordination with local emergency service providers. The plan shall include items such as: the number and size of trucks per day, expected arrival/departure times, truck circulation patterns, location of truck staging areas, location/amount of employee parking, and any proposed use of traffic control/partial street closures on public streets. The overall goal of the Construction TMP will be to ensure maintenance of acceptable operating conditions and to maintain a high level of safety for all roadway users. The Construction TMP shall adhere to the following performance standards throughout project construction:</p> <ol style="list-style-type: none"> 1. Any lane closures on eastbound Nicolaus Road during project construction should be limited to a single lane during off-peak hours (9:00 a.m. to 2:30 p.m.), and shall not create unsafe travel conditions for bicyclists. 2. Any lane closures on eastbound Nicolaus Road shall not affect operations at the WPUSD bus yard parcel on the southwest corner of the Waverly Drive/Nicolaus Road intersection. 3. Delivery/refuse trucks shall not idle/stage on Nicolaus Road nor shall any lane closures. 4. For construction occurring west of Waverly Drive, Street 18 shall be used by construction traffic (versus Waverly Drive) 5. For construction occurring east of Waverly Drive, construction traffic shall use Street 18 to the extent possible and use Waverly Drive such that construction traffic does not block access to the existing residential community. 6. Roadways, sidewalks, crosswalks, and bicycle facilities shall be maintained clear of debris (e.g., rocks) that could otherwise impede travel and impact 	LTS

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Table 2-1 Summary of Impacts and Mitigation Measures			
Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
		<p>public safety.</p> <p>A copy of the Construction TMP shall be submitted to local emergency response agencies and these agencies shall be notified at least 30 days before the commencement of construction that would partially or fully obstruct roadways.</p>	
<p>Impact 4.10-8: Cumulative impacts to City of Lincoln intersections. The project would cause three study intersections to deteriorate to an unacceptable LOS. Therefore, the project would have a considerable contribution to a significant cumulative City intersection impact.</p>	S	<p>Mitigation Measure 4.10-8: Cumulative impacts to City of Lincoln intersections.</p> <ul style="list-style-type: none"> ▲ Prior to issuance of a grading permit, the project applicant shall contribute its fair share cost or fully fund, implement, and seek a third party reimbursement agreement toward restriping the westbound dedicated right-turn lane at the Nelson Lane/ Nicolaus Road intersection to be a shared right/through lane, and extending the second westbound receiving lane 300 feet. No physical changes to the roadway (e.g., new paving, or realignment) would be required with this improvement; therefore, no new significant environmental impacts would result. ▲ Prior to issuance of a grading permit, the project applicant shall contribute its fair share cost or fully fund, implement and seek a third party reimbursement agreement toward installation of a traffic signal at the Waverly Drive/Teal Hollow Drive/Nicolaus Road intersection. Installation of the signal would occur within the existing right of way and physical changes to the roadway (e.g., new paving, or realignment) would be required with this improvement; therefore, no new significant environmental impacts would result. ▲ The City at its next regularly scheduled update, shall update the City of Lincoln's Public Facilities Element (PFE) to incorporate these improvements and shall identify the timing or trigger for implementation to ensure roadway operation conditions are maintained at acceptable levels. Mitigation proposed is consistent with the projects qualifying for funding in the PFE. <p>As shown in Appendix G, this improvement would restore operations to LOS C during the AM and PM peak hours.</p>	LTS
<p>Impact 4.10-9: Cumulative impacts to Caltrans intersections. Under cumulative conditions, the project would exacerbate projected unacceptable operations at the SR 65/Nelson Lane intersection during the AM peak hour. Therefore, the project would have a considerable contribution to a significant cumulative impact to Caltrans intersections.</p>	S	<p>Mitigation Measure 4.10-9: Cumulative impacts to Caltrans intersections. The City of Lincoln is in the process of updating its PFE fee program, which includes funding for the improvements below. The project applicant shall pay its fair share through the City's PFE program towards the construction of the following improvements.</p> <ul style="list-style-type: none"> a) SR 65 / Nelson Lane <ul style="list-style-type: none"> - Construct a new interchange at SR 65 / Nelson Lane, as supported by Lincoln General Plan Policy T-2.9. This includes the following lane configurations to 	SU

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Table 2-1 Summary of Impacts and Mitigation Measures			
Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
		<p>provide acceptable operations at the interchange ramp terminal intersections:</p> <ul style="list-style-type: none"> i. SR 65 Northbound Ramps / Nelson Lane intersection: <ul style="list-style-type: none"> 1. Northbound SR 65 off-ramp: one left-turn lane, one shared left-right turn lane, and one right turn lane 2. Northbound Nelson Lane: three through lanes, one free right-turn lane onto the northbound SR 65 loop on-ramp 3. Southbound Nelson Lane: three through lanes, one free right-turn lane onto the northbound SR 65 slip on-ramp ii. SR 65 Southbound Ramps / Nelson Lane intersection: <ul style="list-style-type: none"> 1. Southbound SR 65 off-ramp: one left-turn lane and one right-turn lane 2. Northbound Nelson Lane: three through lanes, one free right-turn lane onto the southbound SR 65 slip on-ramp 3. Southbound Nelson Lane: three through lanes, one free right-turn lane onto the southbound SR 65 loop on-ramp <p>Additional funding for the interchange may be provided by a proposed sales tax measure being considered for the November 2016 ballot by the Placer County Transportation Planning Agency (PCTPA). If passed, the PCTPA sales tax measure spending plan includes partial funding for the SR 65/Nelson Lane interchange. The sales tax measure would not fund the total cost of the interchange, but may replace the project applicants' fair share amount.</p> <p><i>Significance after Mitigation</i></p> <p>With construction of a new interchange at SR 65/Nelson Lane as described above, the traffic operations at the affected intersection would improve to an acceptable LOS. Therefore, the cumulative impact and the project's contribution to that impact would be reduced to a less-than-significant level. However, not all of the traffic-related improvements recommended above would be funded by the City's PFE. Further, even if the PCTPA fee program is approved by the voters, the program would only partially fund the necessary improvements. Because there are no assurances that full funding would be available and that Caltrans would approve construction of this interchange in a timely way, the cumulative impact would remain significant and unavoidable and the project's contribution would be considerable.</p>	

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3 PROJECT DESCRIPTION

3.1 INTRODUCTION

The project applicant, Lewis Land Developers LLC, proposes to construct a 575 single-family unit master-planned residential community on a 194.2-acre site in the City of Lincoln, Placer County, California. The community would include five residential village neighborhoods, each with distinct single-family, residential lot sizes and a range of homes sizes on 93 acres of the site. The development would also include 45.6 acres of passive open space and preservation areas, 13.6 acres of active parks including a community center, a 2.7-acre mixed-use area, and 3 gross acres of public facilities and major roadway areas. Markham Ravine and an unnamed tributary traverse the site and would be preserved as part of a continuous open space corridor. No changes or development activity are proposed within a 35-acre parcel designated as a “Remainder Area” located within the southeastern portion of the project site and south of the tributary to Markham Ravine.

3.2 PROJECT SITE

3.2.1 Location and Surrounding Land Uses

The Independence at Lincoln Development Project (project) is located on 194.2 acres on Assessor’s Parcel Number 021-262-006, 021-262-010, 021-262-012, and 021-262-038, in the City of Lincoln in Placer County (Exhibit 3-1). The project site is traversed by Markham Ravine Lower Tributary, which is tributary to the Markham Ravine watershed. The site is accessed from Nicolaus Road via Waverly Drive (Exhibit 3-2).

Adjacent land uses include single-family, residential neighborhoods to the northeast and east; a property used for school bus and maintenance operations to the northeast; Santa Clara Memorial Park Cemetery and single-family, residential neighborhoods to the south; undeveloped land to the west and southwest; and Nicolaus Road, commercial development, and undeveloped land to the north. The project site is located approximately 32 miles northeast of downtown Sacramento and 27 miles south of Yuba City.

3.2.2 Project Background and Site Characteristics

The project site is located on the former location of the City of Lincoln wastewater treatment facility (treatment facility). The treatment facility was deactivated in 2004 after the City completed the construction and full activation of a new wastewater treatment and reclamation facility on Fiddymont Road, located approximately 2 miles southwest of the project site. Since 2004, the City has been implementing a long-term decommissioning process for the facility that includes berm deconstruction, soil removal, grading, and the demolition of old wastewater conveyance facilities. The decommissioning activities are almost finished and scheduled to be completed in 2016.

The topography of the site is generally gently undulating in the areas planned for development with slopes of two to nine percent. The site is traversed by an unnamed tributary to Markham Ravine that runs from the eastern end of the site to the northwestern edge. A soil berm is located along the west and north side of the ravine. Elevations on the site range from approximately 105 feet to 135 feet above mean sea level. The stream corridor is associated with riparian woodlands, freshwater marshes, seasonal wetlands, and black willow thickets that support a variety of wildlife species. A 35-acre mitigation site (U.S. Army Corp of Engineers [USACE] Permit No. 9000104 and the Laehr Project) is located in the southeast corner of the project site where seasonal wetlands, riparian woodlands, and excavated ponds were created along the stream (Entrix 1991). The rest of the project site is mainly disturbed, non-native grasslands.

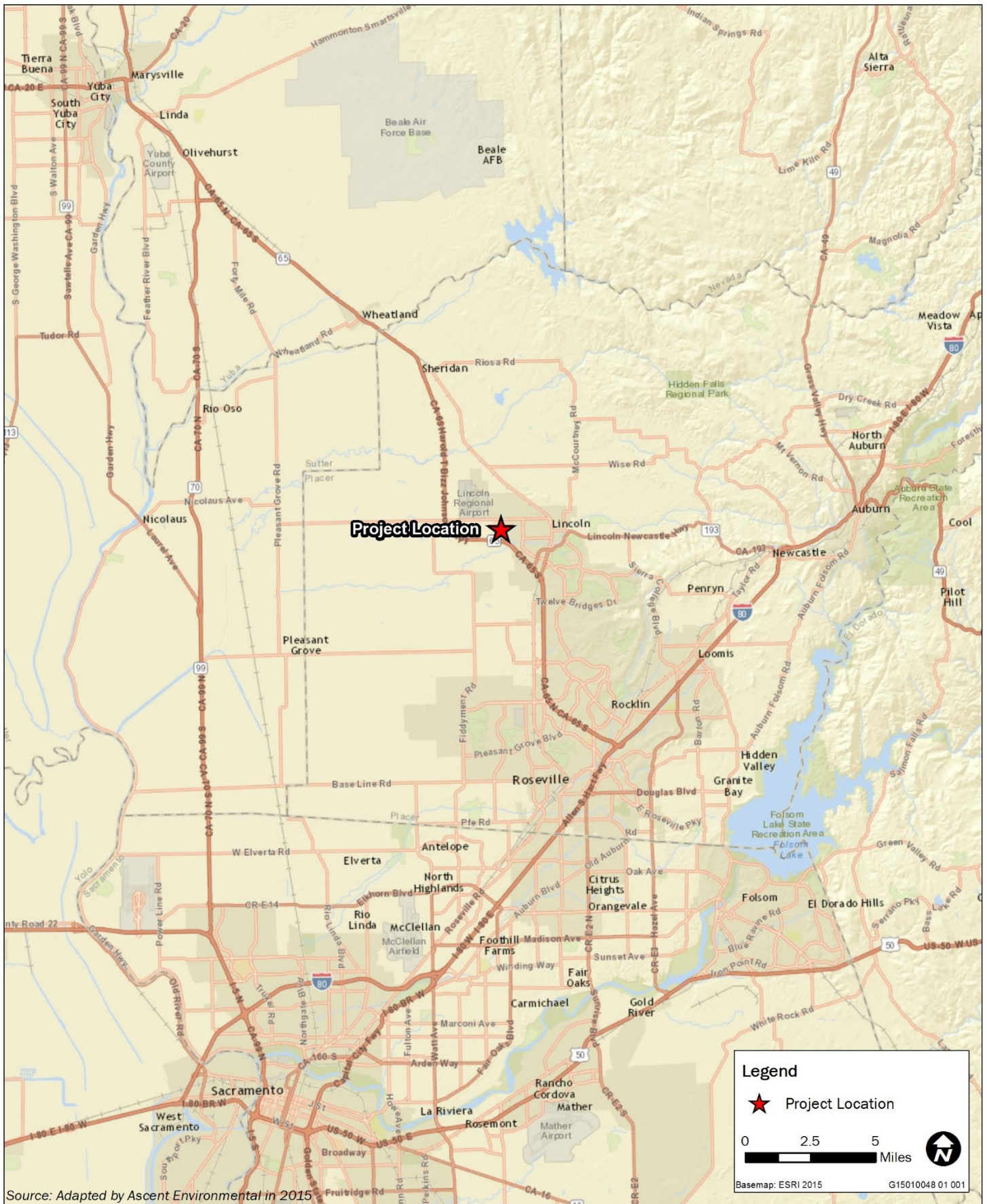
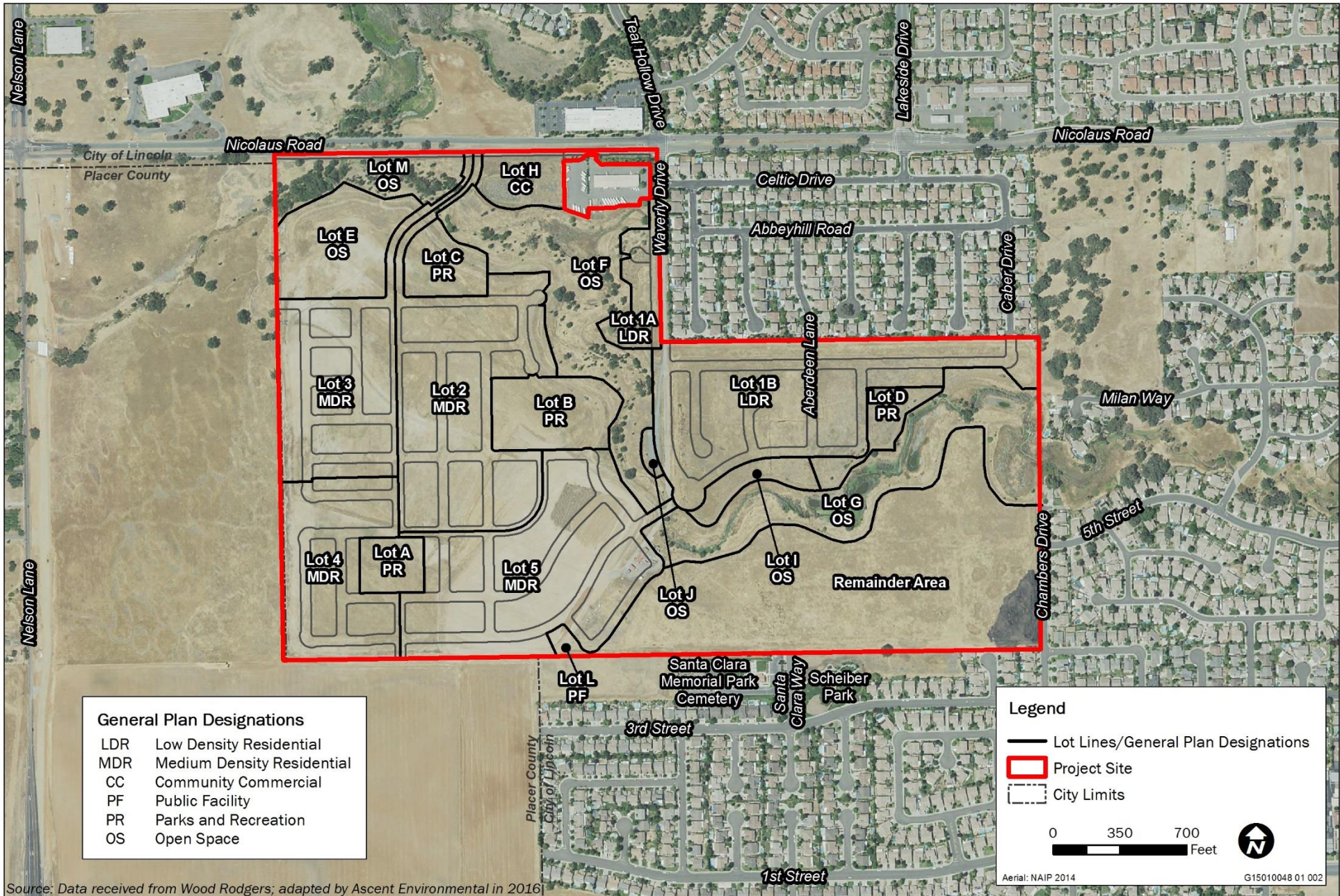


Exhibit 3-1

Project Vicinity





Source: Data received from Wood Rodgers; adapted by Ascent Environmental in 2016

3.3 PROJECT OBJECTIVES

CEQA requires that an EIR include a statement of objectives for the project, and that the objectives include the underlying purpose of the project. These objectives help the lead agency determine the alternatives to evaluate in the EIR (see CEQA Guidelines Section 15124[a]). The following is a list of objectives for the project:

- ▲ Provide residential development that meets local and state requirements for energy efficiency and mitigates for adverse environmental impacts.
- ▲ Provide open space, parks, and single-family residential uses at the project site and within an area designated for urban development and expansion.
- ▲ Create a project that provides a fair-share contribution of infrastructure to the community through the payment of fees and/or construction of required capital improvements, including transportation improvements in accordance with the City's general plan.
- ▲ Protect the highest quality natural features and resources of the project site while being sensitive to the character of adjacent land uses.
- ▲ Provide a residential community containing open space and a range of passive and active recreational amenities for both the residents within the community and the City.
- ▲ Provide a comprehensively planned project that is sensitive to environmental issues including waterway and tree preservation.
- ▲ Improve emergency access and circulation by providing new roadway connections to Nicolaus Road.
- ▲ Implement the City's general plan strategies and methods for achieving its vision and goals of sustainable growth and economic development.
- ▲ Repurpose the project site for residential and open space land uses consistent with closure certification from the Central Valley Regional Water Quality Control Board.

3.4 PROPOSED PROJECT

The project is a proposed master-planned residential community development that would include low- and medium-density residential land uses and open space and public facilities to serve the development. Specifically, the project would include the construction of 575 single-family, residential homes on 94.3 acres, 45.6 acres of passive open space and preservation areas, 13.6 acres of active parks including a community center, a 2.7-acre mixed-use area (Lot H), and three gross acres of public facilities and major roadway areas.

No changes or development activity are proposed within a 35-acre parcel designated as a "Remainder Area" located within the southeastern portion of the project site and south of the tributary to Markham Ravine. This area was used as mitigation land to permit the development of other property within the City of Lincoln over 20 years ago. Any future proposal for development, would be required to undergo separate project review and consultation with the City of Lincoln and other outside resource agencies.

3.4.1 Proposed Land Use Designations and Zoning

Exhibit 3-3 presents the existing and proposed land use designations for the project site as designated by the City of Lincoln General Plan Land Use and Circulation Diagram (2014). The project site is currently designated as Business Professional (BP), Open Space (OS), Agriculture (AG), Medium-Density Residential (MDR) (6-12.9 units per gross acre), and Low Density Residential (LDR) (3-5.9 units per gross acre) in the City of Lincoln General Plan. As illustrated in Exhibit 3-4, the current City of Lincoln zoning designation for the project site is Industrial (I).

Development of the site as proposed would alter the existing landscape from undeveloped disturbed land to a residential community, but the project site has been designated for urban development in the City's General Plan and Zoning Ordinance. Because development of the project would not be consistent with some of the current land use designations and zoning of the project site, an amendment to land use designations and rezoning of 159.2 acres of the project site is proposed.

Specifically, the project would require a General Plan Amendment from the City of Lincoln to amend existing land use designations from Business Park to Medium Density Residential, Park and Open Space for the western portion of the property; Medium Density Residential to Low Density Residential and Park for a small area on the eastern portion of the property; Agriculture to Mixed Use for an area adjacent to Nicolaus Road; and an increase in the area designated as Open Space around the portion of the Markham Ravine tributary that traverses the site (see Exhibit 3-3). The "Remainder Area" on the eastern portion of the property south of the Markham Ravine tributary is currently designated as Low Density Residential and Medium Density Residential and is not proposed to be changed as a part of this entitlement request.

The project would also require a Rezone from the City of Lincoln from its existing zoning as Industrial to Single Family Residential (Residential-1 PD), Open Space, Park, and Commercial (see Exhibit 3-4). The "Remainder Area" is currently zoned Industrial and is not proposed to be changed as a part of the entitlement request.

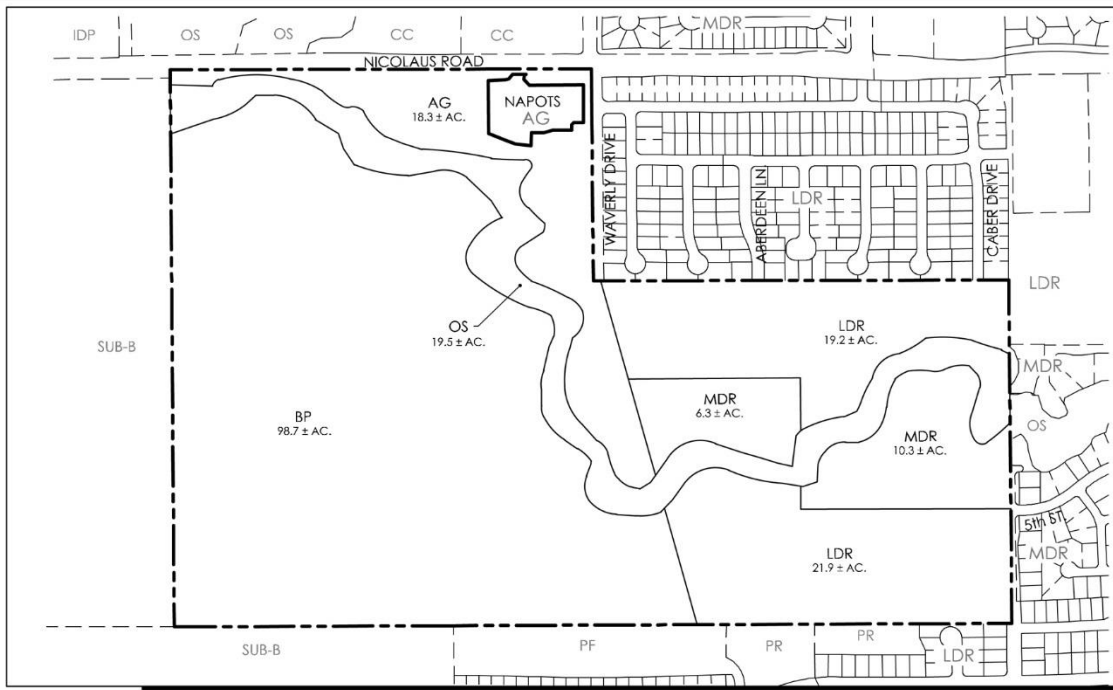
3.4.1 Residential Villages and Community Center

The proposed community includes five residential village neighborhoods, each with distinct single-family, residential lot sizes. Each village would have a range of homes sizes which would be determined by future home buyer demand. Four of the five village neighborhoods are adjacent to and surround a central park (Lot B) with a community center which would be dedicated to the City of Lincoln after project build-out.

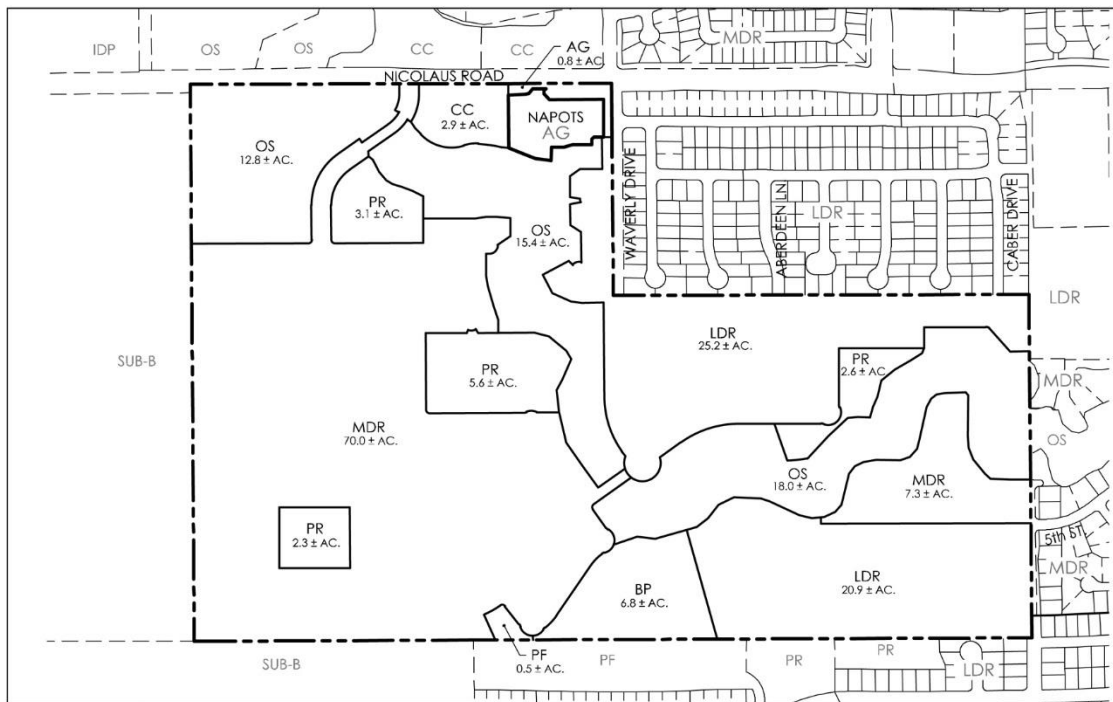
3.4.2 Recreation, Open Space, and Landscaped Amenities

Sidewalks would be included along all local residential streets. Multi-use trail connections are proposed along both sides of Markham Ravine and would connect to the eastern project boundary where existing Chambers Drive dead ends. These trail connections would provide the existing neighborhoods to the east and south with access to the open space and recreation components along and adjacent to the Markham Ravine tributary. Additional access points could be provided to the southwest and west to provide future connectivity to the adjacent undeveloped properties if and when they develop.

Open space features within the proposed community have been designed to preserve the existing tributary to Markham Ravine within a continuous open space corridor and create active and passive public recreation areas adjacent to those resources. The open space corridor would include multi-use trails, benches, interpretive signage, and multi-use, water quality and detention basins which would expand the passive recreational environment. The proposed location and footprint of proposed area basins are illustrated in Exhibit 3-5a and Exhibit 3-5b. Adjacent to the open space corridor would be three parks (Lots B, C, and D)



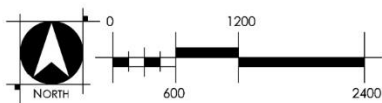
Existing General Plan



Proposed General Plan

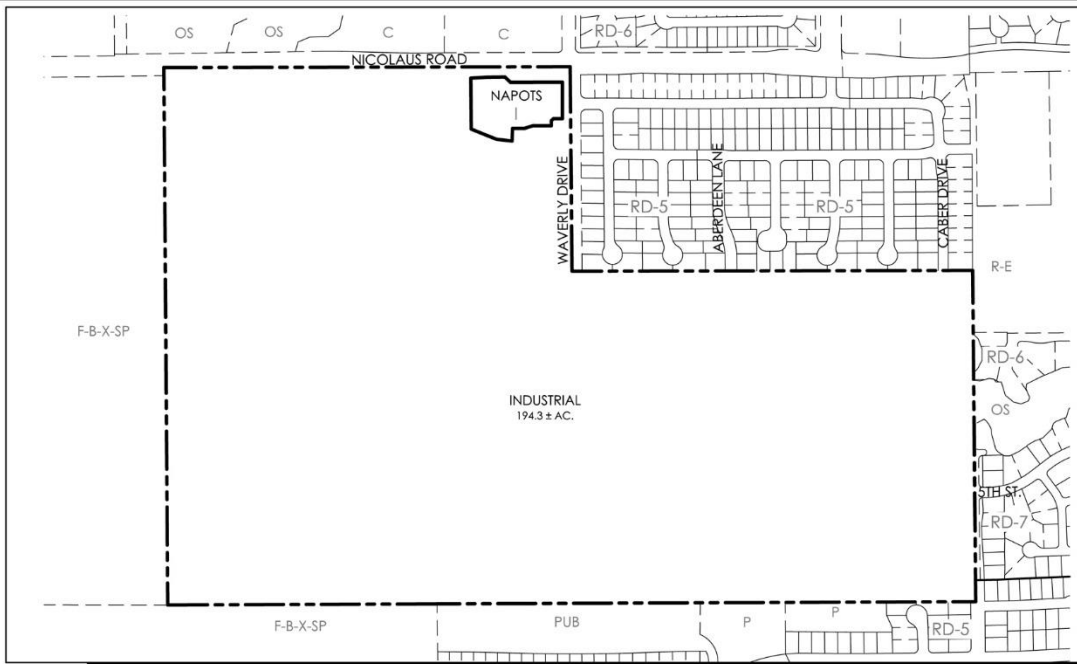
GENERAL PLAN SUMMARY TABLE

GENERAL PLAN DESIGNATION	LAND USE DESCRIPTION	EXISTING ACRE	PROPOSED ACRE	DIFFERENCE
LDR	LOW DENSITY RESIDENTIAL	41.1	46.1	5.0
MDR	MEDIUM DENSITY RESIDENTIAL	16.6	77.3	60.7
CC	COMMUNITY COMMERCIAL	0.0	2.9	2.9
AG	AGRICULTURE	18.3	0.8	-17.5
PF	PUBLIC FACILITIES	0.0	0.5	0.5
PR	PARKS AND RECREATION	0.0	13.6	13.6
OS	OPEN SPACE	19.5	46.2	26.7
BP	BUSINESS PROFESSIONAL	98.7	6.8	-91.9
		194.2	194.2	0.0

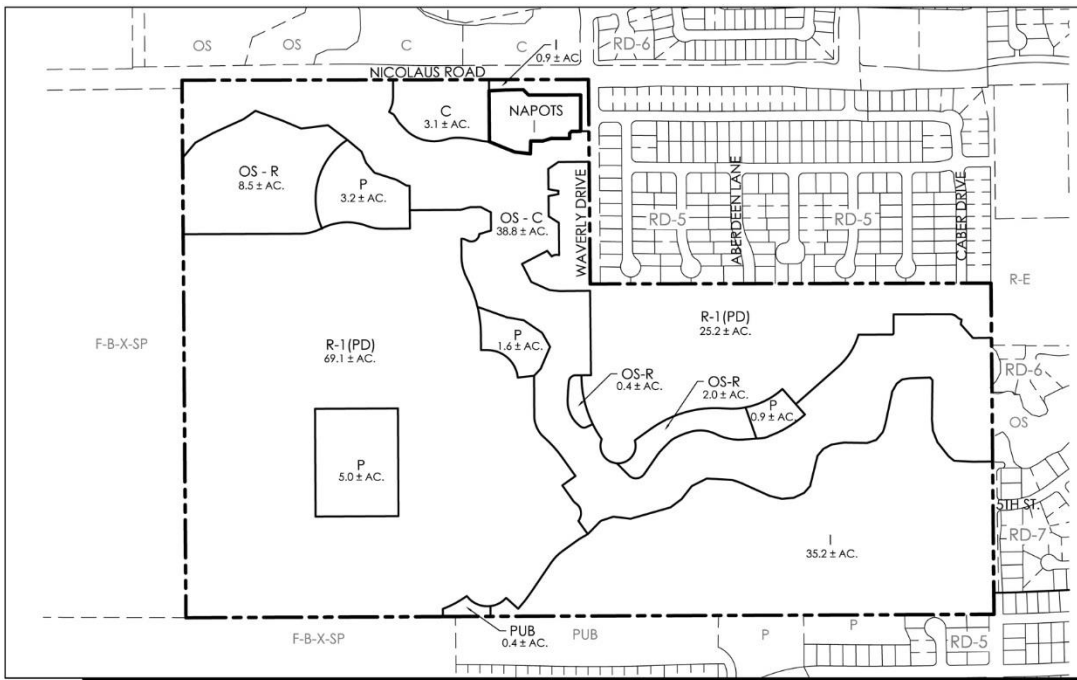


Source: Wood Rodgers 2016

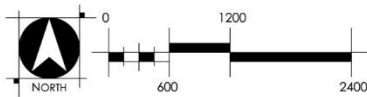
X15010048 01 001



Existing Zoning



Proposed Zoning

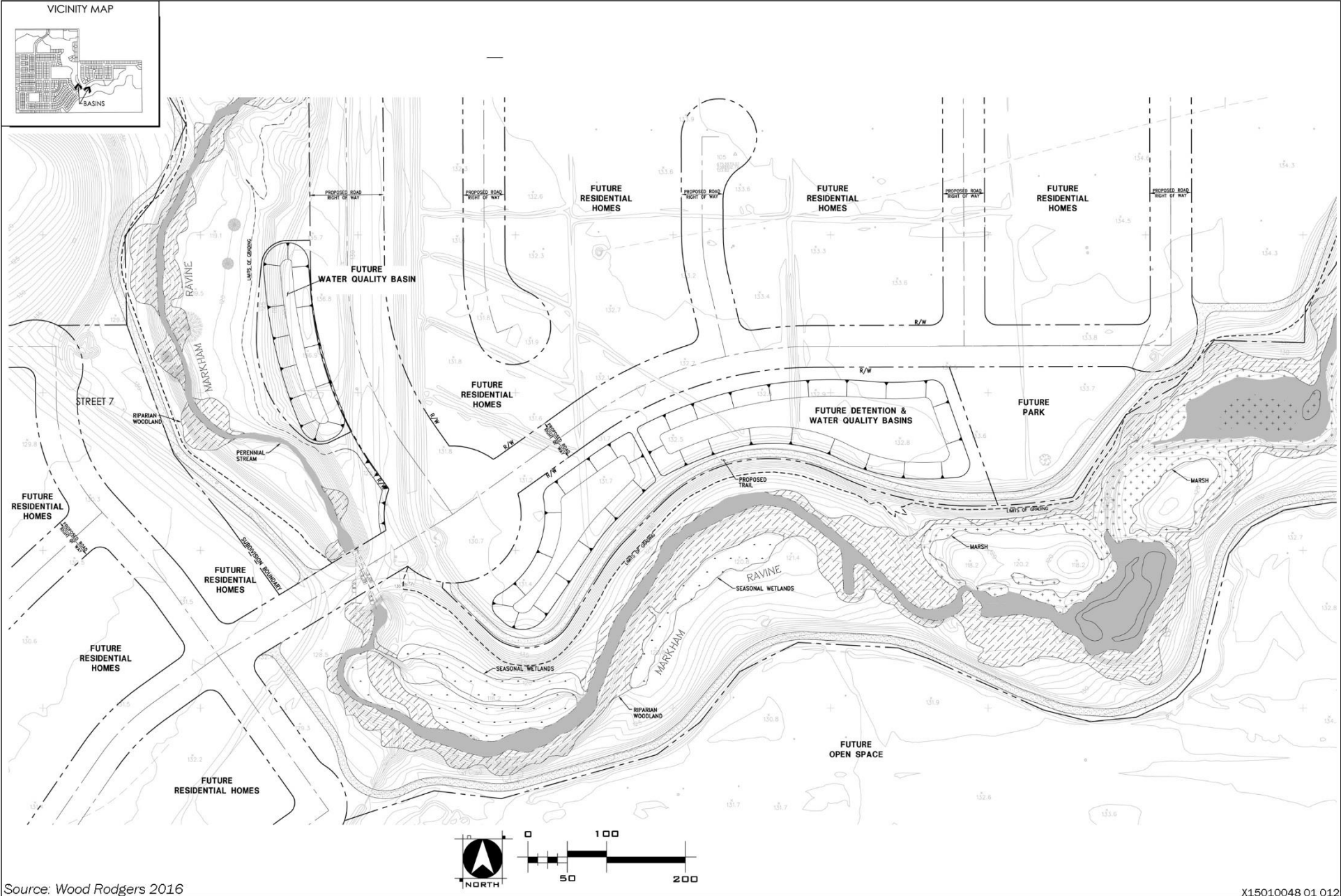


REZONING SUMMARY TABLE

ZONING DESIGNATION	LAND USE DESCRIPTION	EXISTING ACRE	PROPOSED ACRE	DIFFERENCE
R-1(PD)	SINGLE FAMILY RESIDENTIAL	0.0	94.3	94.3
C	COMMERCIAL	0.0	3.1	3.1
I	INDUSTRIAL	194.3	36.1	-158.2
PUB	PUBLIC FACILITY	0.0	0.4	0.4
P	PARKS AND RECREATION	0.0	10.7	10.7
OS-R	OPEN SPACE - RECREATION	0.0	10.9	10.9
OS-C	OPEN SPACE - CONSERVATION	0.0	38.8	38.8
		194.3	194.3	0.0

Source: Wood Rodgers 2015

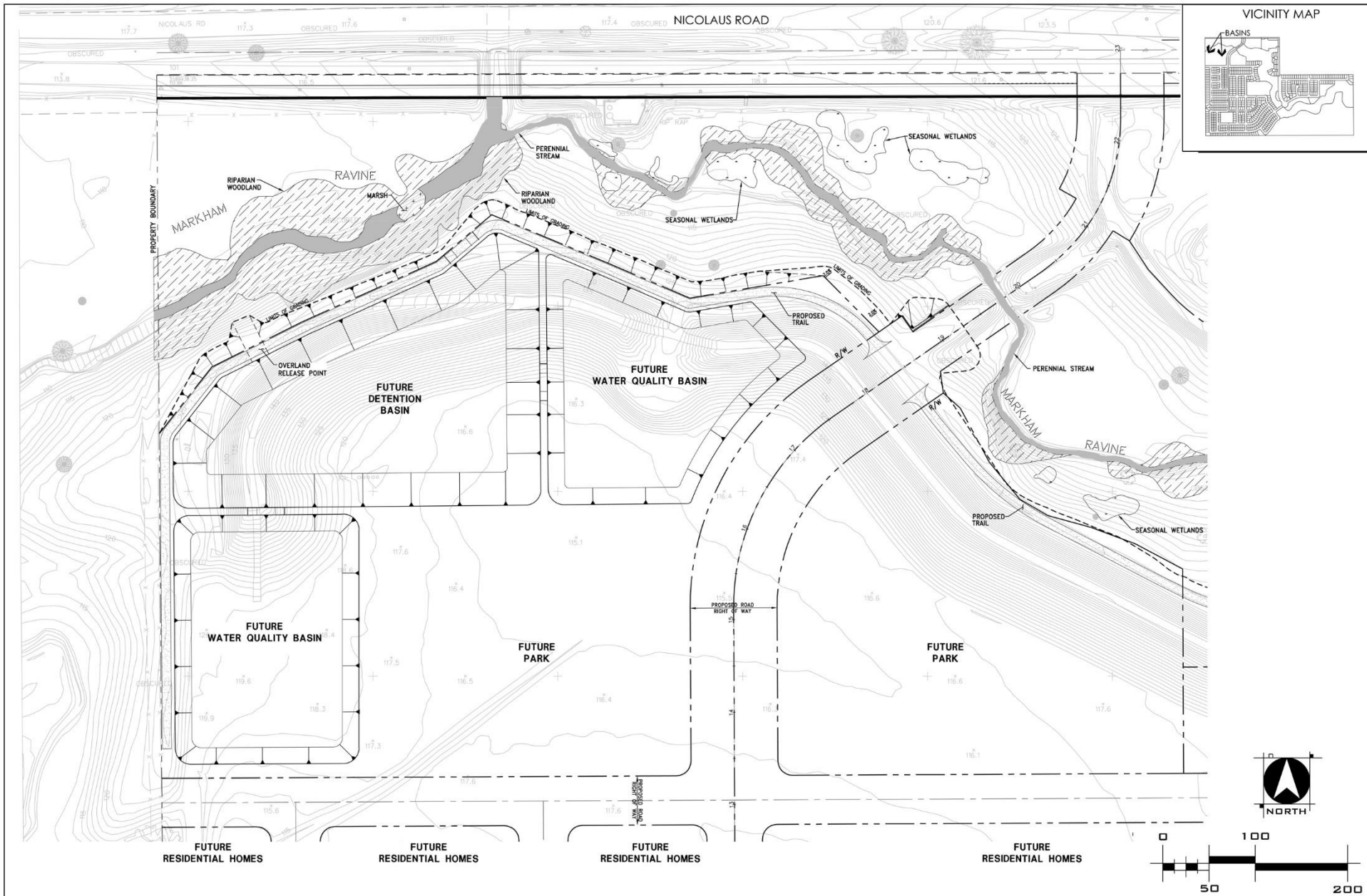
X15010048 01 002



Source: Wood Rodgers 2016

X15010048 01 012





Source: Wood Rodgers 2016

X15010048 01 009

Exhibit 3-5b

Phase 2 Area Basins



which would serve as gateways and active public recreational environments along the corridor. At the northwest corner of the community (Lot E), a multi-use, drainage basin is proposed to detain and filter storm water run-off (see Exhibit 3-5b). A portion of this basin would serve as a year-round passive recreational area with a separate portion designed to serve as an active recreational area during the drier seasons.

3.4.1 Infrastructure

ROADWAYS AND CIRCULATION

The circulation plan for the community includes multiple options for vehicular, bicycle, and pedestrian access. From Nicolaus Road just north of the project site, roadway access would be provided by existing Waverly Drive and a proposed roadway connection approximately 800 feet west of the Waverly Drive/Nicolaus Road intersection. The new roadway connection to Nicolaus Road would serve as the main community entry drive which would continue southward with construction of a spanning bridge crossing over the Markham Ravine (Exhibit 3-6a). An existing dirt culvert crossing over the unnamed tributary of Markham Ravine would be upgraded with the installation of new culverts, a bridge soffit on the top, and concrete abutments (Exhibit 3-6b). The concrete abutments for both the northern and southern creek crossings would occur outside of the creek corridor. A proposed street connection to Aberdeen Drive (see Exhibit 3-2) would provide the existing neighborhood located northeast of the project site with immediate access and connectivity to the open space and park amenities within the community.

In addition, a 0.8-acre frontage area surrounding the Western Placer Unified School District bus yard parcel, located southwest of the Nicolaus Road/Waverly Drive intersection may be disturbed as part of the project to allow right-of-way expansion, if needed, at the intersection.

UTILITIES AND SERVICES

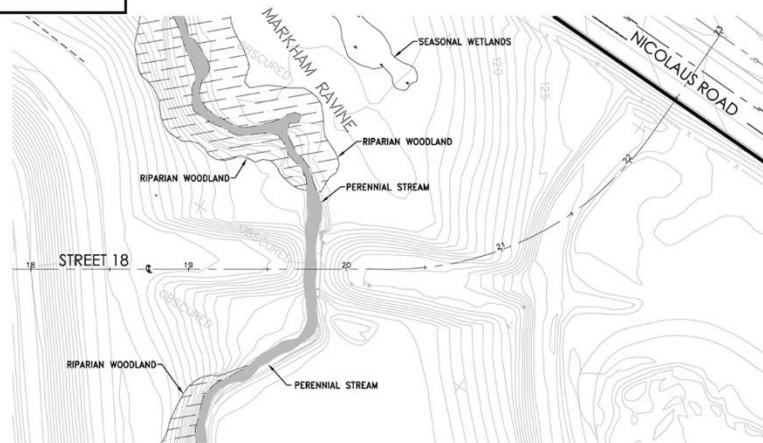
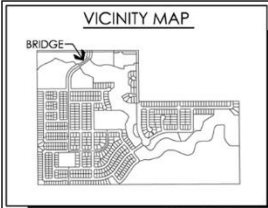
Onsite and offsite water and sanitary sewer pipelines, a sewer lift station (Lot L), a site for a domestic water well, undergrounded electrical, and propane facilities would be constructed as part of the project (see Exhibit 3-2 for proposed location of these features). The preliminary water and sewer plan layout is illustrated in Exhibit 3-7. With the exception of the proposed domestic water connections to the existing water facilities located in Nicolaus Road and Waverly Drive, no other offsite utility construction work (i.e., drainage, sewer or water) is anticipated to be necessary to serve this development.

Water, sewer, and residential garbage and recycling collection service would be provided by the City of Lincoln. A homeowner's association, and covenants, conditions, and restrictions (CCRs) would be established prior to the occupancy of any homes for the purpose of managing and maintaining the private lanes, courts, and common area landscaping, as well as governing the CCRs.

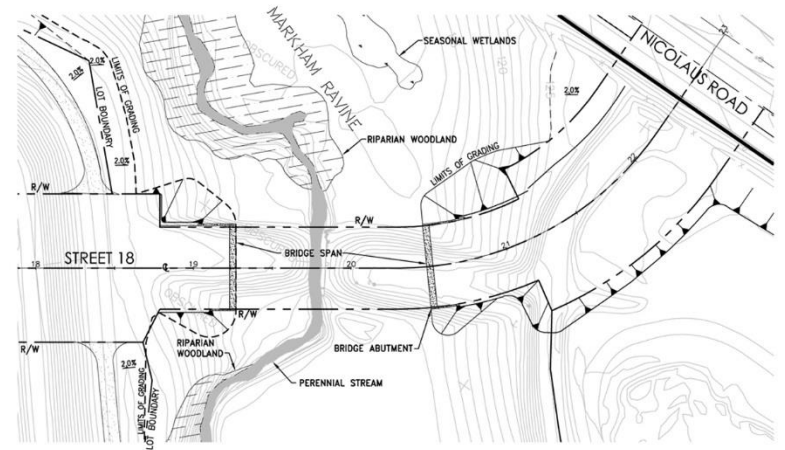
As directed by the City, a site for a potential City domestic water well has been designated for this use and is located in the southwest corner of the project site (i.e., within Lot 4). The construction, operation, and maintenance of the well, if constructed, would be analyzed by the City in a separate document related to the proposed expansion of the City's existing groundwater system.

OUTDOOR LIGHTING

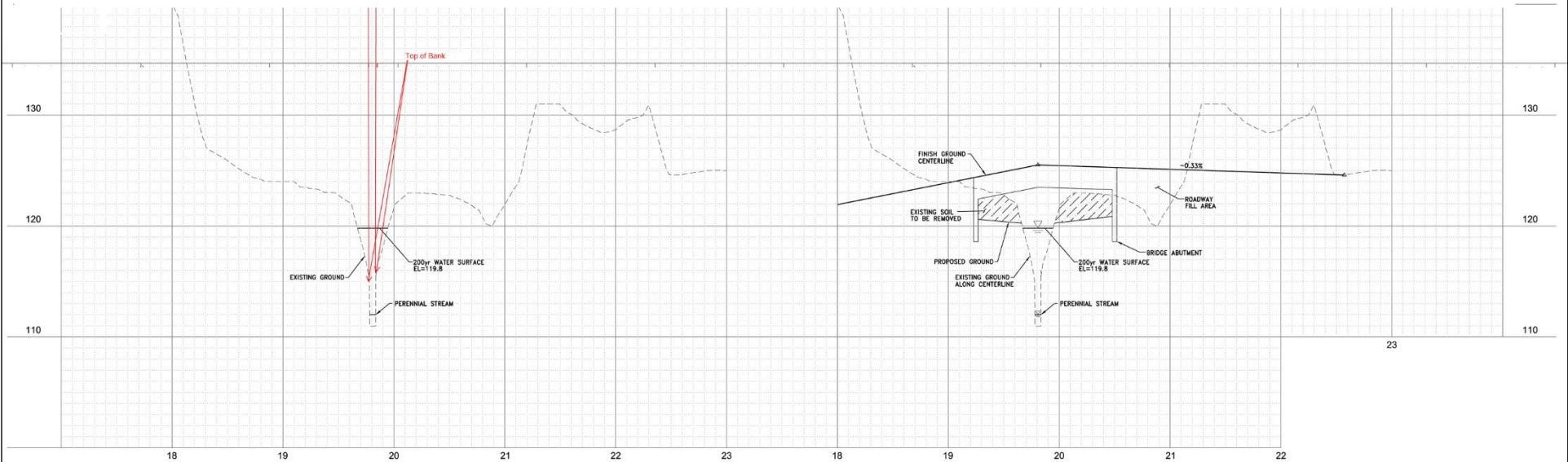
Outdoor lighting would be installed in conformance with City codes and ordinances, applicable safety and illumination requirements, and California Title 24 requirements. Lighting would be installed at major intersections and mid-block pedestrian crossings, as appropriate for public safety, and along vertical curves where lighting is needed for public safety. Limited safety and security lighting and indirect shielded lighting would also be provided along trail corridors.



EXISTING PLAN VIEW



PROPOSED PLAN VIEW



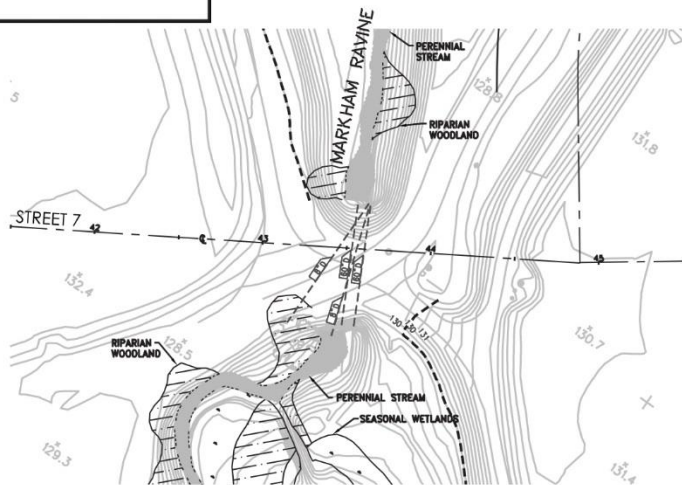
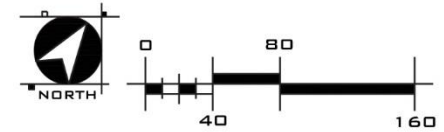
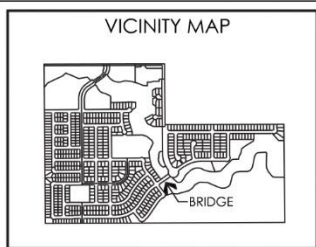
Source: Wood Rodgers 2016

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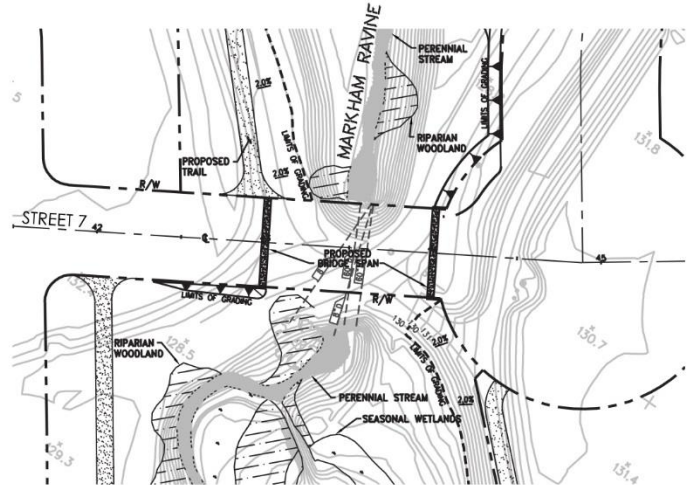
Exhibit 3-6a

Proposed Spanning Bridge (Street 18 Bridge)

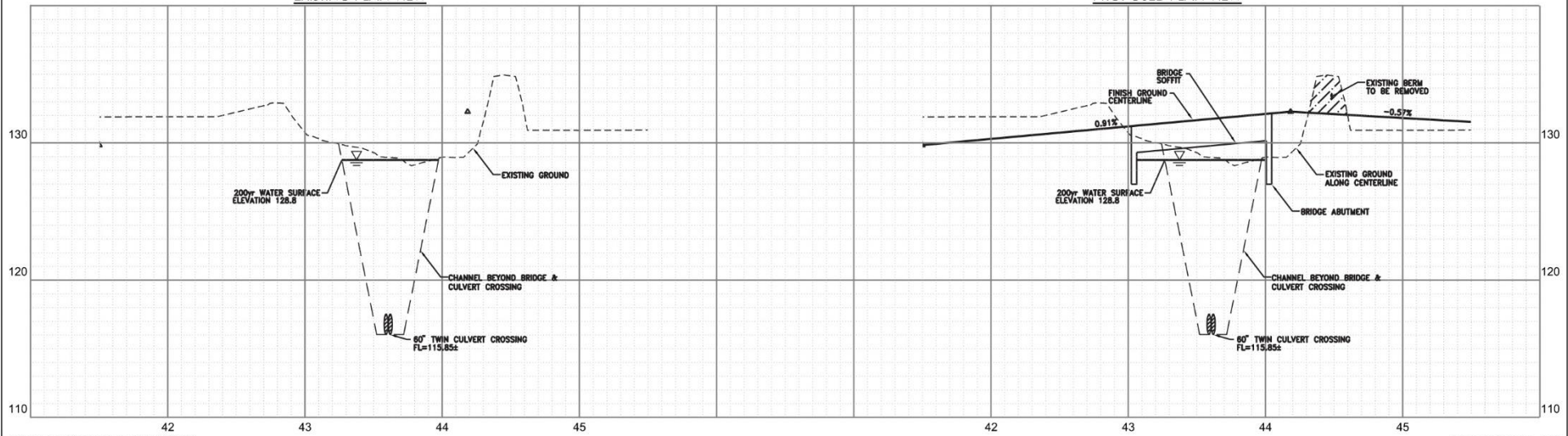




EXISTING PLAN VIEW



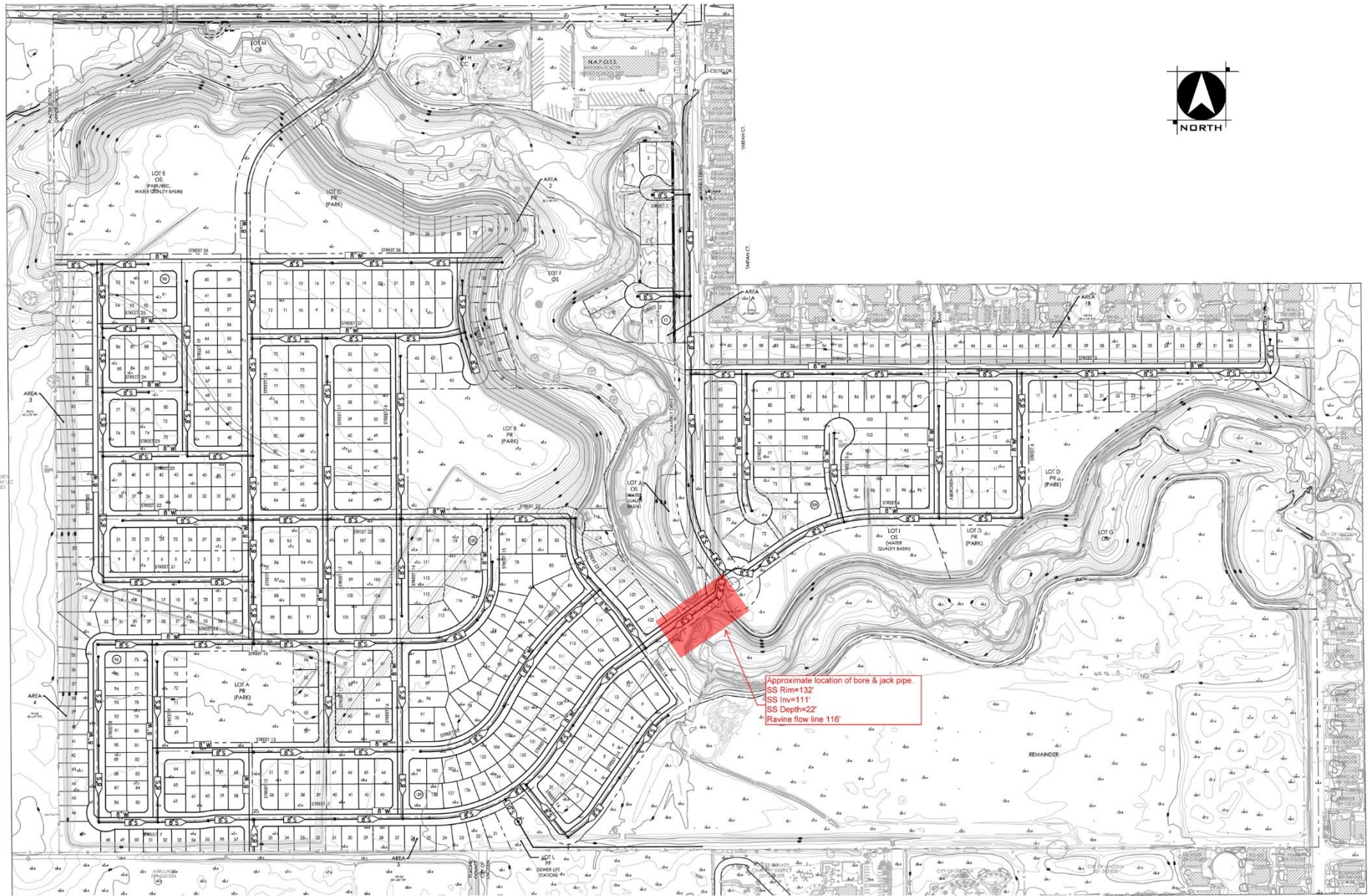
PROPOSED PLAN VIEW



Source: Wood Rodgers 2016

X15010048 01 025





Source: Wood Rodgers 2016

X15010048 01 010

Exhibit 3-7

Preliminary Water and Sewer Plan Layout



DRAINAGE

The entire project site discharges into Markham Ravine lower tributary, which is tributary to the Markham Ravine Watershed. There are four primary drainage sheds within the project site: 1) north of Markham Ravine lower tributary and adjacent Nicolaus Road, 2,3) north of Markham Ravine lower tributary and south of the existing residential subdivision, and 4) south of Markham Ravine lower tributary. Topography for each of the drainage shed areas fall at a relatively flat and constant slope towards Markham Ravine lower tributary near the center of the project site.

Existing onsite drainages would be preserved to the extent practicable. As illustrated in Exhibits 3-5a and 3-5b, a drainage infrastructure system is proposed onsite to accommodate the increase in impervious surfaces. The project would involve construction of a drainage conveyance system with three detention basins: North Basin, Central Basin, and South Basin. The basins would be 4.4 acres, 0.3 acre, and 1.4 acres, respectively. As required by the City, the onsite drainage system will be designed in conformance with City of Lincoln Municipal Code (Chapter 13.30 - Construction Storm Water Runoff Control, Sections 13.30.120 and 13.30.100), Central Valley RWQCB requirements, and the Placer County Stormwater Management Manual (SWMM). Implementation of Best Management Practices (BMPs) and a Storm Water Pollution Prevention Plan (SWPPP), and would minimize and prevent erosion or sedimentation into waterways or ponds on the project site.

3.4.2 Other Community Features

To reduce traffic-noise exposure and provide added privacy for existing residences located adjacent and east of Waverly Drive, a six-foot tall masonry sound wall would be constructed. The wall would be located at the property line of residences located directly adjacent to Waverly Drive.

A soil berm located along the west and north side of Markham Ravine would be deconstructed as part of the project. Location and footprint of the berm is illustrated in Exhibit 3-8.

3.5 CONSTRUCTION

Construction activities associated with project development would include excavation and relocation of soil on the site, backfilling and compaction of soils, construction of utilities and service systems (i.e., potable water conveyance, wastewater conveyance, sewer lift station, storm water drainage facilities, three drainage basins, underground electrical, and construction of proposed residential and mixed use land uses). With the exception of the potential for offsite utility infrastructure (e.g., connecting pipelines), all construction activities would take place within approximately 145 +/- acres of the 194.2-acre project site. Construction equipment would vary day-to-day depending on the project phase and the activities occurring, but would involve operation of graders, dozers, excavators, scrapers, other tractors, cranes, forklifts, generator sets, curb equipment, pavers, paving equipment, rollers, welders, and air compressors. No blasting or pile driving is proposed. The project would include bore and jack operations under a segment of Markham Ravine (see Exhibit 3-7 for approximate location) to allow installation of sewer lines without encroaching within the waterway and surrounding open space corridor.

Construction workers would access the site via Waverly Drive from Nicolaus Road. The project would generate a "cut" volume of 400,000 cubic yards (cy) and "fill" volume of 350,000 cy. After accounting for anticipated shrinkage of the soil material, the grading is expected to be balanced with no import or export of materials required.

Construction staging for materials and equipment would occur within the project site.

LEGEND

- SEASONAL WETLANDS
- MARSH
- RIPARIAN WOODLAND
- PERENNIAL STREAM
- BERM
- TRAIL



Source: Wood Rodgers 2016

X15010048 01 011

3.5.1 Schedule and Phasing

Construction is anticipated to occur between 7:00 a.m. and 7:00 p.m., Monday through Friday. Night construction is not proposed.

Timing of construction of the project would be affected by the entitlement process, market demand, and other factors. For the purposes of this analysis, construction is assumed to occur between 2016 and 2019. The project would be developed in two phases.

PHASE 1: Construction of this phase is anticipated to begin as early as late fall of 2016 and would take place on approximately 31+/- acres in the easterly portion of the project site. Activities would include initial site preparation (grubbing, clearing, and grading) over a two-month period, followed by infrastructure development over a four-month period, and then construction of 122 residences between 2017 and 2019 (i.e., construction of 36 residences in 2017, 48 residences in 2018, and 38 residences in 2019). Phase 1 is anticipated to take place over a 36-month period, ending in late 2019.

PHASE 2: This phase is anticipated to begin as early as late fall 2016 on approximately 160 +/- acres located in the westerly portion of the project site. Similar to Phase 1, activities would include initial site preparation (grubbing, clearing, and grading) over the first two months, followed by infrastructure development over a six-month period, and then construction of 453 residences between 2017 and 2019 (i.e., construction of approximately 144 residences in 2017, 192 residences in 2018, and 117 residences in 2019). Buildout of the proposed mixed use area is anticipated in 2018. Phase 2 is anticipated to take place over a 36-month period, ending in late 2019.

3.5.2 Construction Workers and Equipment

As described above, Phase 1 and Phase 2 of construction would occur simultaneously. Up to 163 construction workers would be on the site during the most labor-intense phase of construction (i.e. construction of residences, paving, and architectural coating), which would generate approximately up to 326 one-way vehicle trips per day (assumes vehicle occupancy of one worker per vehicle). Up to 34 vendor trucks would access the site in a day during building construction, which would generate 68 one-way trips.

Construction equipment would include a grader, dozer, excavators, tractors/loaders/backhoes, scrapers, a crane, forklifts, pavers, rollers, a generator set, a welder, and an air compressor. A boring jack power unit would be used for installation of utility lines under the waterway.

4.1 AESTHETICS

This section describes the existing visual characteristics of the project area and evaluates the potential for the project to result in substantial adverse visual impacts. The visual impact analysis considers existing scenic resources and the potential for public views to be affected by the project. Public views are defined as views from public locations, such as roadways, scenic vista areas, parks, schools, or other public buildings.

This section is based on field surveys of the project site that were conducted by Ascent Environmental, Inc. in November 2015; and review of aerial photographs of the project site and vicinity; and site plans of the project.

4.1.1 Existing Setting

The project site is located within the City of Lincoln, which is located on the eastern edge of the Sacramento Valley floor at the base of the Sierra Nevada foothills. The visual character of the site is that of undeveloped, generally flat lands. The site's visual context is greatly influenced by surrounding development as it is primarily surrounded by suburban elements. The following sections further describe the visual character of the project site and its surroundings, as well as views of the site within the project vicinity.

VISUAL CHARACTER OF THE PROJECT SITE

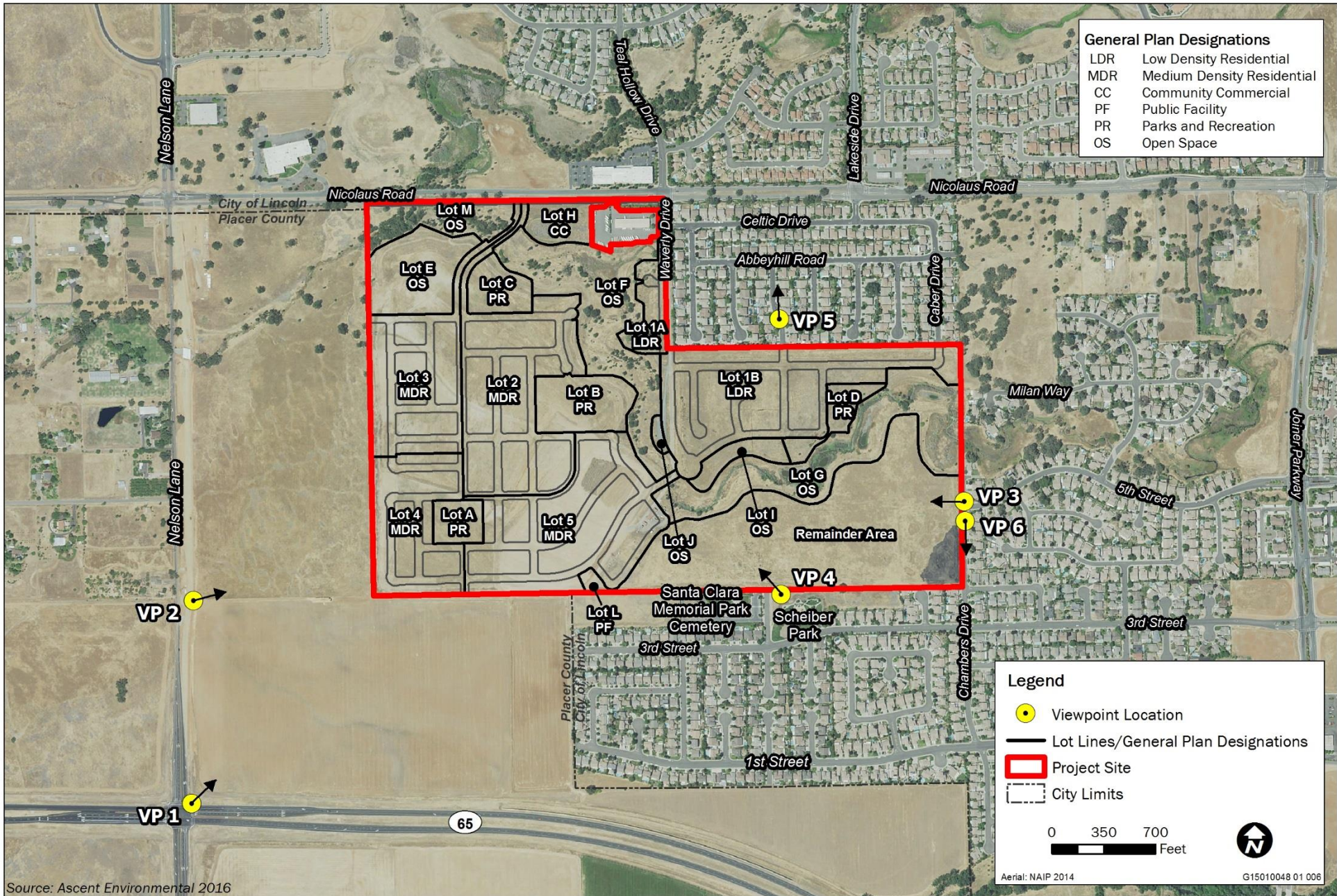
The approximately 159-acre site ranges in elevation from approximately 110 to 135 feet above mean sea level. The topography of the site is relatively flat, with the exception of soil berms constructed around the perimeter of the former wastewater ponds and areas in the western portion that were used as a borrow site for fill materials needed for the construction of the State Highway 65 bypass. The project site is bounded to the north by Nicolaus Road, an existing school bus yard, and a single-family residential subdivision; to the east by an existing single-family residential subdivision; to the south by undeveloped land, an existing cemetery, and an existing single-family residential subdivision; and to the west by fallow land, beyond which is Nelson Lane.

Land within the site is primarily fallow land that contains non-native vegetation. Markham Ravine meanders through the norther portion of the site in the western half of the property and extends through the center of the eastern half of the site. Riparian woodlands, freshwater marshes, and valley oak woodlands are located along Markham Ravine. The site is currently undeveloped, vacant land with a few unpaved dirt roads and trails that cross the site.

VIEWS OF THE PROJECT SITE

Because of the topography of the site and surrounding areas, available views of the site are generally limited to private properties that immediately border the site, to motorists on SR 65, as well as to motorists on some nearby residential streets within the adjacent subdivisions, primarily where streets terminate at the project site. Beyond the immediately adjacent residential subdivisions, partial views of the site are also available from raised elevations in the project vicinity, although views of the site from some of these locations are obstructed by existing structures, trees, and bushes, are distant, and generally blend with surrounding developed and undeveloped areas.

Representative photographs from six viewpoints were taken to better describe the existing conditions. The location and direction of these viewpoints is shown in Exhibit 4.1-1; representative photographs are provided in Exhibit 4.1-2 through 4.1-5.



Source: Ascent Environmental 2016

Exhibit 4.1-1

Representative Viewpoints





Source: Ascent Environmental 2015

Exhibit 4.1-2

Viewpoint 1



Source: Ascent Environmental 2015

X15010048 01.006

Exhibit 4.1-3

Viewpoint 2





Source: Ascent Environmental 2015

Exhibit 4.1-4

Viewpoint 3



Source: Ascent Environmental 2015

X15010048 01 007

Exhibit 4.1-5

Viewpoint 4



Viewpoint 1: Viewpoint 1 is located at the intersection of SR 65 and Nelson Lane. From this location, the southwestern corner of the project site is located approximately 1,900 feet to the northeast. As depicted, from this vantage point, the project site contains flat lands with scattered mature trees. Vegetative areas appear to be managed. Subdivisions, located to the north and south may be seen at the horizon in the center and right side of the photograph (Exhibit 4.1-2).

Viewpoint 2: Viewpoint 2 is located along Nelson Lane, approximately 2,650 feet south of Nicolaus Road. From this location, the southwest corner of the project site would be located approximately 1,250 feet in the distance, adjacent to the wood and barb wire fence line visible in the photograph. Foreground views consist of flat vegetated lands; background views consist of the housing development located adjacent to the project site.

Viewpoint3: Viewpoint 3 is located near the intersection of 5th Street and Chambers Drive in Lincoln, California. As depicted in this photograph, views of the project site are obscured sloped land located next to the western sidewalk along Chambers Drive. A barb wire fence that surrounds the project site is visible from this location.

Viewpoint4: Viewpoint 4 is located in the northwestern corner of Scheiber Park, which is situated approximately 700 feet south of Markham Ravine. This photograph depicts the relatively flat lands of the project site, mature trees located within the project site, and the edge of Markham Ravine. A temporary building used for hazardous materials remediation is visible near the center of the photograph; residences located north of the project site can be seen are the right edge on the photograph.

Viewpoint 5: Viewpoint 5 is located along Aberdeen Lane, looking north. This photograph provides a sample of the types of houses typical to the neighborhood surrounding the project site.

Viewpoint 6: Viewpoint 6 is located along Chambers Drive, looking south. This photograph provides a sample of the types of houses typical to the neighborhood surrounding the project site.

VISUAL CHARACTER OF THE SURROUNDING AREA

The project is northeast of SR 65, and is bound on the north, east, and south by existing developments along Nicolaus Road and Joiner Parkway. Surrounding developments are primarily residential; however, public lands and a park are located south of the project site, and a portion of the area north of the project site contains open space and commercial uses. Several roadways terminate at the project site boundary, including: Waverly Drive, 3rd Street, 1st Street, Santa Clara Way, and Aberdeen Lane. Representative photographs of the surrounding development are provided in Exhibits 4.1-6 and 4.1-7. Areas to the west of the project site are predominately rural land, consisting of agricultural uses and scattered residences.

4.1.2 Regulatory Background

FEDERAL

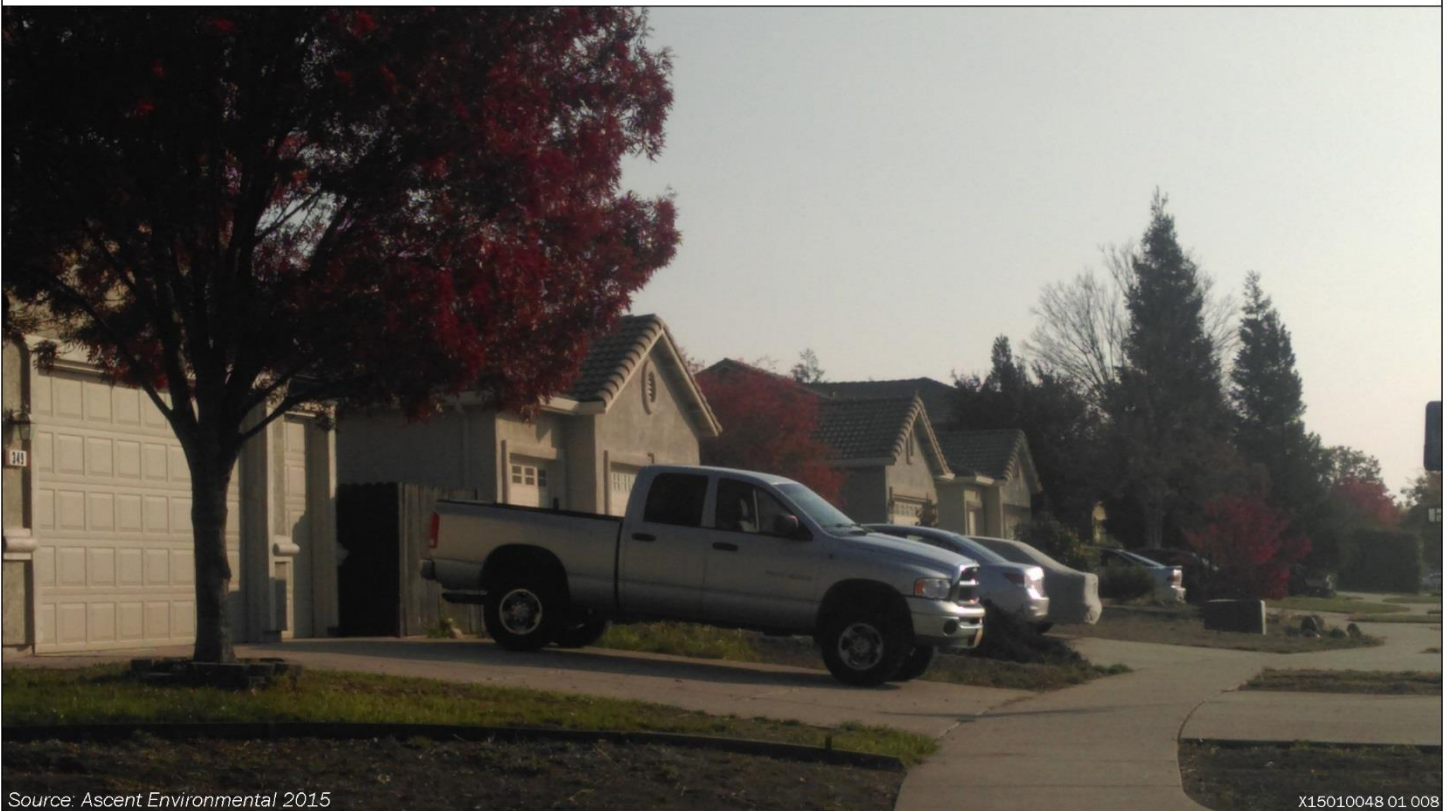
There are no federal programs or policies addressing visual resources that pertain to the project.



Source: Ascent Environmental 2015

Exhibit 4.1-6

Visual Character of the Surrounding Area (Viewpoint 5)



Source: Ascent Environmental 2015

X15010048 01 008

Exhibit 4.1-7

Visual Character of the Surrounding Area (Viewpoint 6)



STATE

California Scenic Highway Program

California's Scenic Highway Program was created by the California Legislature in 1963 and is managed by the California Department of Transportation (Caltrans). The goal of this program is to preserve and protect scenic highway corridors from changes that would affect the aesthetic value of the land adjacent to highways. A highway may be designated "scenic" depending on how much of the natural landscape travelers can see, the scenic quality of the landscape, and the extent to which development intrudes on travelers' enjoyment of the view (Caltrans 2008).

The program includes a list of eligible highways and officially designated scenic highways, and includes a process for the designation of official State or County Scenic Highways. The project site is not located within view of a state scenic highway. The nearest highway subject to this program is Highway 49, an Eligible Designated State Scenic Highways, located approximately 12 miles east of the project site (Caltrans undated).

LOCAL

City of Lincoln General Plan

The following policies of the City's General Plan would be applicable to the project:

- ▲ **Policy LU-9.7:** The City shall encourage development that is visually and functionally compatible with the surrounding neighborhoods by:
 - a. Maintaining a height and density of development that is compatible with adjacent developed neighborhoods; and
 - b. Accenting entrances to new neighborhoods with varied landscaping, hardscaping, and signage treatment.
- ▲ **Policy LU-11.3:** The City shall require that all outdoor light fixtures, including street lighting, externally illuminated signs, advertising displays, and billboards, use low-energy, shielded light fixtures that direct light downward (i.e., lighting shall not emit higher than a horizontal level). Up-lighting of architectural features or landscaping can be allowed in compliance with California Title 24 Energy Standards (as amended) and based on City design review. Additionally, the City shall continue to improve and maintain proper lighting in park facilities and fields without undue nuisance light and glare spillage on adjoining residential areas. Where public safety would not be compromised, the City shall encourage the use of low intensity lighting for all outdoor light fixtures.
- ▲ **Policy LU-12.3:** To enhance views of hillsides, open space, and other distinctive views within the community, proposed project designs will be expected to maintain some viewshed by regulating building orientation, height, and mass.
- ▲ **Policy LU-12.4:** Where feasible, the City should preserve the existing natural edges along the city's creek system and wetland areas and restore impacted creeks by planting natural vegetation.
- ▲ **Policy LU-12.6:** Wherever practical, the City will encourage new development to be oriented towards adjacent creeks and wetland areas and provide visual access to these areas.
- ▲ **Policy LU-14.2:** The City shall encourage development of diverse and distinctive neighborhoods that build on the patterns of the natural landscape and are responsive in their location and context.

- ▲ **Policy LU-14.3:** The City shall encourage buildings to foster a sense of place by providing transitions between the street and building, front setback variation for residential development, and building articulation and massing, as part of development standards or any design guidelines that may be prepared.

Elements such as porches, bay windows, and landscaping should be designed to create a transition between public and private spaces. When porches are incorporated into the design, they should be designed as a usable outdoor space.

- ▲ **Policy LU-14.5:** The City shall require that entrances to new neighborhoods be accented with distinctive landscaping, pavement, and signage treatments.

4.1.3 Environmental Impacts and Mitigation Measures

ANALYSIS METHODOLOGY

Evaluation of potential aesthetic and visual resource impacts are based on a review of development considerations and documents pertaining to the project site. In determining the level of significance, this analysis assumes that the project would comply with the identified relevant state and local ordinances and regulations, as well as the general plan policies presented above.

THRESHOLDS OF SIGNIFICANCE

The project would cause a significant impact on visual resources if the project would:

- ▲ have a substantial adverse effect on a scenic vista;
- ▲ substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- ▲ substantially degrade the existing visual character or quality of the site and its surroundings; or
- ▲ create a new source of substantial light or glare that would adversely affect day or night-time views in the area.

ISSUES OR POTENTIAL IMPACTS NOT DISCUSSED FURTHER

The project site is not visible from a designated state scenic highway or county scenic road. Therefore, the project would not result in damage to scenic resources within view of a state scenic highway or locally designated roadways. Impacts related to state scenic highways or county scenic roads would not occur and are not discussed further in this EIR.

A scenic vista is generally considered to be a location from which the public can experience unique and exemplary high-quality views—typically from elevated vantage points that offer panoramic views of great breadth and depth. The visual character of the site is that of undeveloped flat lands. However, the site's visual context is also greatly influenced by surrounding development as it is primarily surrounded by suburban elements. The project site consists of disturbed lands, some of which were previously used as a wastewater treatment plant. Views of the site are not unique to vacant lots within and near to the City of Lincoln and do not constitute a scenic vista. Impacts to scenic vistas are not discussed further in this EIR.

IMPACT ANALYSIS

Impact 4.1-1: Visual character and quality impacts.

The change in character of the project site, once developed, would be visually compatible with surrounding existing residential neighborhoods to the north, south, and east. Therefore, the project would not substantially degrade the existing visual character or quality of the site and its surroundings and this impact would be **less than significant**.

The project site currently consists of generally flat terrain covered by non-native grasslands, scattered stands of mature trees, dirt roads, and Markham Ravine. The project is a proposed master-planned residential community that would alter the existing visual character of the site from an open, undeveloped landscape to urban uses.

Urban land uses associated with the project consist of residential village neighborhoods and a community center. The project includes five residential village neighborhoods, with four of the five village neighborhoods located adjacent to and surrounding a central park (Lot B). Pedestrian and circulation amenities would contribute to the visual character and quality of the new development, because they would be similar to the existing surrounding developments (e.g., sidewalks, trees, and areas of open space). The development would be visually and functionally compatible with the surrounding neighborhood (Policy LU-9.7). Residential areas built as part of the project would be similar in size, color, and density to the surrounding neighborhoods (see Exhibits 4.1-6 and 4.1-7). This would allow for views of hillsides, open space, and other distinctive views to be maintained to a similar degree as under the existing conditions (Policy LU-12.3).

Consistent with General Plan Policy LU-12.4, open space features within the proposed community have been designed to preserve the existing tributary to Markham Ravine within a continuous open space corridor and create active and passive public recreation areas adjacent to those resources. The open space corridor would include multi-use trails, benches, interpretive signage, and drainage basins which would expand the passive recreational environment. Adjacent to the open space corridor would be three parks (Lots B, C, and D) which would serve as gateways and active public recreational environments along the corridor. At the northwest corner of the community (Lot E), a multi-use, drainage basin is proposed to detain and filter storm water run-off. A portion of this basin would serve as a year-round passive recreational area with a separate portion designed to serve as an active recreational area during the drier seasons.

The use of open space along the edge of Nicolaus Road and adjacent to existing residential neighborhoods would provide visual separation of the project from adjacent residential communities to the north, east, and south of the project site. With the exception of the eastern project boundary and a portion of the northern boundary, much of the site's perimeter would be maintained as open space or parks, preserving a natural buffer between existing residential subdivisions of similar residential densities along SR 65. Although tree removal would occur onsite, most of the existing trees located within proposed open space areas, along Markham Ravine, would be retained to maintain some of the existing natural character of the site. In addition, new trees would be planted throughout the site, consistent with surrounding neighborhood and park landscaping.

Upon build-out, the project would be of similar visual character to adjacent developments. For motorists travelling along nearby roadways, such as SR 65, Nelson Lane, and Nicolaus Road, the project would appear to be a continuation of adjacent land uses and would not present unexpected or otherwise unpleasant aesthetic values within the general project vicinity. Generally, views of the project site are not visible from nearby residences, due to the existing fencing and mature trees and vegetation that obscures views. In addition, the use of open spaces and preserves would minimize any visual intrusion of the project on nearby residents. Thus, the change in character of the project site, once developed, would be visually compatible with surrounding existing residential neighborhoods to the north, south, and east. Therefore, the project would not substantially degrade the existing visual character or quality of the site and its surroundings and this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 4.1-2: Light and glare impacts.

The proposed residential development would include indoor lighting and outdoor lighting for safety purposes. The proposed roadways, parks, and pathways would also include outdoor safety lighting. These new sources of light would be visible from a distance at night. Because the project site is located in an area with substantial, existing suburban development, the new light sources would be consistent with, and blend in with that of surrounding suburban development. Compliance with General Plan Policy LU-11.3 would ensure that light and glare created by the project would be the minimum required, and comparable to that of surrounding residential neighborhoods. The impact would be **less than significant**.

Residential development and streets to the north, east, and west currently produce a moderate amount of nighttime lighting from street lighting, residential interiors, and exterior building lighting. Because light sources from the project would be consistent with the type and intensity of existing lighting sources, the existing, ambient condition would not substantially change. The project site is currently undeveloped and does not contain existing lighting. With development of the project, sources of nighttime lighting would be added and would increase nighttime lighting in the area with a type and intensity of lighting consistent with residential neighborhoods located north, east, and west of the project site. When viewed from more distant areas, the lighting associated with the residential development could appear to increase skyglow in the area because the existing project site is currently dark.

General Plan Policy LU-11.3 requires that all outdoor light fixtures, including street lighting, externally illuminated signs, advertising displays, and billboards, use low-energy, shielded light fixtures that direct light downward (i.e., lighting shall not emit higher than a horizontal level). Additionally, where public safety would not be compromised, the City shall encourage the use of low intensity lighting for all outdoor light fixtures. As discussed in Section 3.4.4, Infrastructure, outdoor lighting would be installed in conformance with City codes and ordinances, applicable safety and illumination requirements, and California Title 24 requirements. That is, lighting would be installed at major intersections and mid-block pedestrian crossings, as appropriate for public safety, and along vertical curves where lighting is needed for public safety. Limited safety and security lighting and indirect shielded lighting would also be provided along trail corridors. Further, proposed lighting would also be placed to ensure it illuminates only the intended areas and does not penetrate into residential communities. These lighting plans would be consistent with General Plan Policy LU-11.3 as described above.

Development on the project site could also increase daytime glare because of an increase in the number of windows and use of certain types of building materials. However, use of non-reflective building materials is proposed as part of the project and the project would be required to undergo design review with the City to confirm it complies with the City's design requirements. Therefore, impacts associated with the creation of light or glare, such that it adversely affects daytime or nighttime views in the area, would be **less than significant**.

Mitigation Measures

No mitigation is required.

4.2 AIR QUALITY

This section includes a discussion of existing air quality conditions, a summary of applicable regulations, and an analysis of potential short-term and long-term air quality impacts that could result from implementation of the project. The methods of analysis for short-term construction, long-term regional (operational), local mobile-source, and toxic air emissions is consistent with the recommendations of the Placer County Air Pollution Control District (PCAPCD), the California Air Resources Board (ARB), and the U.S. Environmental Protection Agency (EPA). In addition, mitigation measures are recommended as necessary to reduce significant air quality impacts.

4.2.1 Environmental Setting

The project site is located in a portion of western Placer County that is part of the Sacramento Valley Air Basin (SVAB). The SVAB also includes all of Butte, Colusa, Glenn, Sacramento, Shasta, Sutter, Tehama, Yolo, and Yuba Counties; and the eastern portion of Solano County.

Ambient concentrations of air pollutants are determined by the amount of pollutants emitted and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and the presence of sunlight. Therefore, existing air quality conditions in the Mountain Counties Air Basin are determined by such natural factors as climate, meteorology, and topography, in addition to the level of emissions released by existing air pollutant sources. These factors are discussed separately below.

CLIMATE AND METEOROLOGY

The SVAB is a relatively flat area bordered by the north Coast Ranges to the west and the northern Sierra Nevada to the east. Air flows into the SVAB through the Carquinez Strait, the only breach in the western mountain barrier, and moves across the Sacramento–San Joaquin Delta (Delta) from the San Francisco Bay area.

The Mediterranean climate type of the SVAB is characterized by hot, dry summers and cool, rainy winters. During the summer, daily temperatures range from 50 degrees Fahrenheit (°F) to more than 100°F. The inland location and surrounding mountains shelter the area from most of the ocean breezes that keep the coastal regions moderate in temperature. Most precipitation in the area results from air masses that move in from the Pacific Ocean, usually from the west or northwest, during the winter months. More than half the total annual precipitation falls during the winter rainy season (November through February); the average winter temperature is a moderate 49°F. Also characteristic of SVAB winters are periods of dense and persistent low-level fog, which are most prevalent between storms. The prevailing winds are moderate in speed and vary from moisture-laden breezes from the south to dry land flows from the north.

The mountains surrounding the SVAB create a barrier to airflow, which entraps air pollutants when meteorological conditions are unfavorable for transport and dilution. Poor air movement is most frequent in the fall and winter when high-pressure cells are present over the SVAB. The lack of surface wind during these periods, combined with the reduced vertical flow caused by a decline in surface heating, reduces the influx of air and leads to the concentration of air pollutants under stable meteorological conditions. Surface concentrations of air pollutant emissions are highest when these conditions occur in combination with agricultural burning activities or with temperature inversions, which hamper dispersion by creating a ceiling over the area and trapping air pollutants near the ground.

May through October is ozone season in the SVAB. This period is characterized by poor air movement in the mornings until the arrival of the Delta sea breeze from the southwest in the afternoons. In addition, longer

daylight hours provide a plentiful amount of sunlight to fuel photochemical reactions between reactive organic gases (ROG) and oxides of nitrogen (NO_x), which result in ozone formation. Typically, the Delta breeze transports air pollutants northward out of the SVAB; however, a phenomenon known as the Schultz Eddy prevents this from occurring during approximately half of the time from July to September. The Schultz Eddy phenomenon causes the wind to shift southward and blow air pollutants back into the SVAB. This phenomenon exacerbates the concentration of air pollutant emissions in the area and contributes to the area violating the ambient air quality standards.

The local meteorology of the project site and surrounding area is represented by measurements recorded at the weather station located in the City of Rocklin. The normal annual precipitation is approximately 23 inches. January temperatures range from a normal minimum of 35 °F to a normal maximum of 54 °F. July temperatures range from a normal minimum of 58 °F to a normal maximum of 97 °F (Western Regional Climate Center 2016a). The predominant wind direction and speed, measured at the Sacramento International Airport, is from the south at 8 miles per hour (Western Regional Climate Center 2016b, 2016c). Wind data were not available from the Rocklin weather station.

CRITERIA AIR POLLUTANTS

Concentrations of ozone, carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), respirable particulate matter with an aerodynamic diameter of 10 micrometers or less (PM₁₀), fine particulate matter with an aerodynamic diameter of 2.5 micrometers or less (PM_{2.5}), and lead are used as indicators of ambient air quality conditions and are referred to as criteria air pollutants. Criteria air pollutants are air pollutants for which acceptable levels of exposure can be determined and for which an ambient air quality standard has been set by EPA and ARB.

A brief description of each criteria air pollutant's source types and health effects is provided below in Table 4.2-1. Additional information, including emission trends and monitoring data at those monitoring stations located closest to the project site, is provided for ozone and PM, the key criteria air pollutants associated with the project analysis.

Table 4.2-1 Sources and Health Effects of Criteria Air Pollutants			
Pollutant	Sources	Acute¹ Health Effects	Chronic² Health Effects
Ozone	Secondary pollutant resulting from reaction of ROG and NO _x in presence of sunlight. ROG emissions result from incomplete combustion and evaporation of chemical solvents and fuels; NO _x results from the combustion of fuels	Increased respiration and pulmonary resistance; cough, pain, shortness of breath, lung inflammation	Permeability of respiratory epithelia, possibility of permanent lung impairment
Carbon monoxide (CO)	Incomplete combustion of fuels; motor vehicle exhaust	Reduced capacity to pump oxygenated blood; headache, dizziness, fatigue, nausea, vomiting, death	Permanent heart and brain damage
Nitrogen dioxide (NO ₂)	Combustion devices (e.g., boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines), industrial processes, and fires	Coughing, difficulty breathing, vomiting, headache, eye irritation, chemical pneumonitis or pulmonary edema; aggravation of existing heart disease leading to death	Chronic bronchitis, emphysema, decreased lung function
Sulfur dioxide (SO ₂)	Combustion devices (e.g., boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines), industrial processes, and fires	Irritation of upper respiratory tract, increased asthma symptoms, aggravation of existing heart disease leading to death	Chronic bronchitis, emphysema
Respirable particulate matter (PM ₁₀), Fine particulate matter (PM _{2.5})	Fugitive dust, soot, smoke, mobile and stationary sources, construction, fires and natural windblown dust, and formation in the atmosphere by condensation and/or transformation of SO ₂ and ROG	Breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, premature death	Alterations to the immune system, carcinogenesis

Table 4.2-1 Sources and Health Effects of Criteria Air Pollutants			
Pollutant	Sources	Acute¹ Health Effects	Chronic² Health Effects
Lead	Metal processing, piston-engine aircraft or other vehicles operating on leaded fuel	Reproductive/developmental effects (fetuses and children)	Numerous effects including neurological, endocrine, and cardiovascular effects
<small>Notes: NO_x = oxides of nitrogen; ROG = reactive organic gases ¹ "Acute" refers to effects of short-term exposures to criteria air pollutants, usually at fairly high concentrations. ² "Chronic" refers to effects of long-term exposures to criteria air pollutants, usually at lower, ambient concentrations. Source: EPA 2016a</small>			

Ozone

Ozone is a photochemical oxidant (a substance whose oxygen combines chemically with another substance in the presence of sunlight) and the primary component of smog. Ozone is not directly emitted into the air in large amounts, but is formed through complex chemical reactions between precursor emissions of ROG and NO_x in the presence of sunlight (EPA 2016a). ROG are volatile organic compounds (VOCs) that are photochemically reactive. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents used primarily in coating and adhesive processes, as well as evaporation of fuels. NO_x are a group of gaseous compounds of nitrogen and oxygen that result from the combustion of fuels. Emissions of the ozone precursors ROG and NO_x have decreased over the past two decades because of more stringent motor vehicle standards and cleaner burning fuels (ARB 2014a: 3-4 and 4-46).

Nitrogen Dioxide

NO₂ is a brownish, highly reactive gas that is most present in urban environments. The major human-made sources of NO₂ are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO₂. The combined emissions of NO and NO₂ are referred to as NO_x and are reported as equivalent NO₂. Because NO₂ is formed and depleted by reactions associated with photochemical smog (ozone), the NO₂ concentration in a particular geographical area may not be representative of the local sources of NO_x emissions (EPA 2016a).

Particulate Matter

Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less is referred to as PM₁₀. PM₁₀ consists of particulate matter emitted directly into the air, such as fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires and natural windblown dust, and particulate matter formed in the atmosphere by reaction of gaseous precursors (ARB 2014a:1-13 and 3-6; EPA 2016a). PM_{2.5} includes a subgroup of smaller particles that have an aerodynamic diameter of 2.5 micrometers or less. PM₁₀ emissions are dominated by emissions from area sources, primarily fugitive dust from vehicle travel on unpaved and paved roads, construction and demolition, and particles from residential fuel combustion. Direct emissions of PM₁₀ have increased slightly over the last 20 years, and are projected to continue to increase slightly through 2035 (ARB 2014a:3-7). PM_{2.5} emissions have remained relatively steady over the last 20 years and are projected to decrease slightly through 2035 (ARB 2014a:3-6).

Monitoring Station Data and Attainment Area Designations

Criteria air pollutant concentrations are measured at several monitoring stations in the SVAB. The Lincoln – 1445 1st Street monitoring station is located approximately 1.7 miles southeast of the project site and is the closest monitoring station with recent data for ozone and PM_{2.5}. The next closest monitoring station that reports PM₁₀ concentrations is the Roseville – N Sunrise Ave. monitoring station located approximately 15 miles southeast of the project site. In general, the local ambient air quality measurements from these stations are representative of the air quality near the project site. Table 4.2-2 summarizes the air quality data for the three most recent calendar years for which data are available (2013-2015).

Table 4.2-2 Summary of Annual Air Quality Data (2013–2015)

Ozone ¹	2013	2014	2015
Maximum concentration (1-hour/8-hour, ppm)	0.081/0.073	0.107/0.086	0.098/0.082
Number of days state standard exceeded (1-hour/8-hour)	0/2	1/4	2/5
Number of days national standard exceeded (1-hour/8-hour)	0/0	0/1	0/2
Respirable Particulate Matter (PM ₁₀) ²	2013	2014	2015
Maximum Concentration (µg/m ³)	55.5	30.2	35.7
Number of days state standard exceeded (measured ³)	1	0	0
Number of days national standard exceeded (measured ³)	0	0	0
Fine Particulate Matter (PM _{2.5}) ¹	2013	2014	2015
Maximum Concentration (µg/m ³)	46.1	32.3	39.7
Annual Average (µg/m ³)	13.4	*	9.4
Number of days national standard exceeded (measured ³)	*	*	*

Notes: µg/m³ = micrograms per cubic meter; ppm = parts per million; * = Insufficient data to determine the value

¹ Data from the Lincoln - 1445 1st Street station

² Data from the Roseville - N Sunrise Ave. station

³ Measured days are those days that an actual measurement was greater than the level of the state daily standard or the national daily standard. The number of days above the standard is not necessarily the number of violations of the standard for the year.

Sources: ARB 2016

Both ARB and EPA use this type of monitoring data to designate areas according to their attainment status for criteria air pollutants. The purpose of these designations is to identify those areas with air quality problems and thereby initiate planning efforts for improvement. The three basic designation categories are “nonattainment,” “attainment,” and “unclassified.” “Unclassified” is used in an area that cannot be classified on the basis of available information as meeting or not meeting the standards. In addition, the California designations include a subcategory of the nonattainment designation, called “nonattainment-transitional.” The nonattainment-transitional designation is given to nonattainment areas that are progressing and nearing attainment. Attainment designations for the SVAB portion of Placer County are shown in Table 4.2-3 for each criteria air pollutant.

Table 4.2-3 Ambient Air Quality Standards and Designations for Placer County

Pollutant	Averaging Time	California		National Standards ¹	
		Standards ^{2,3}	Attainment Status ⁴	Primary ³	Attainment Status ⁶
Ozone	1-hour	0.09 ppm (180 µg/m ³)	N	-	N (Severe)
	8-hour	0.070 ppm (137 µg/m ³)		0.075 ppm (147 µg/m ³)	N (Severe)
Carbon Monoxide (CO)	1-hour	20 ppm (23 mg/m ³)	A	35 ppm (40 mg/m ³)	U/A
	8-hour	9 ppm (10 mg/m ³)		9 ppm (10 mg/m ³)	
	8-hour (Lake Tahoe)	6 ppm (7 mg/m ³)		-	
Nitrogen Dioxide (NO ₂)	Annual Arithmetic Mean	0.030 ppm (57 µg/m ³)	A	0.053 ppm (100 µg/m ³)	U/A
	1-hour	0.18 ppm (339 µg/m ³)		0.100 ppm	
Sulfur Dioxide (SO ₂)	Annual Arithmetic Mean	-	A	0.030 ppm (80 µg/m ³)	U
	24-hour	0.04 ppm (105 µg/m ³)		0.14 ppm (365 µg/m ³)	
	3-hour	-		0.5 ppm (1300 µg/m ³) ⁵	
	1-hour	0.25 ppm (655 µg/m ³)		0.075 ppm	
Respirable Particulate Matter (PM ₁₀)	Annual Arithmetic Mean	20 µg/m ³	N	-	U
	24-hour	50 µg/m ³		150 µg/m ³	

Table 4.2-3 Ambient Air Quality Standards and Designations for Placer County

Pollutant	Averaging Time	California		National Standards ¹	
		Standards ^{2,3}	Attainment Status ⁴	Primary ³	Attainment Status ⁶
Fine Particulate Matter (PM _{2.5})	Annual Arithmetic Mean	12 µg/m ³	U/A	12.0 µg/m ³	N (Moderate)
	24-hour	-		35 µg/m ³	
Lead ⁷	30-day Average	1.5 µg/m ³	A	-	-
	Calendar Quarter	-		1.5 µg/m ³	U/A
	Rolling 3-Month Avg	-		0.15 µg/m ³	U/A
Sulfates	24-hour	25 µg/m ³	A	No National Standards	
Hydrogen Sulfide	1-hour	0.03 ppm (42 µg/m ³)	U		
Vinyl Chloride ⁷	24-hour	0.01 ppm (26 µg/m ³)	Not Available		
Visibility-Reducing Particle Matter	8-hour	Extinction coefficient of 0.23 per kilometer —visibility of 10 mi or more	U		

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

¹ National standards (other than ozone, PM, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. The PM₁₀ 24-hour standard is attained when 99 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. The PM_{2.5} 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the EPA for further clarification and current federal policies.

² California standards for ozone, CO (except in the Lake Tahoe Basin), SO₂ (1- and 24-hour), NO₂, PM, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California Ambient Air Quality Standards (CAAQS) are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

³ Concentration expressed first in units in which it was promulgated [i.e., parts per million (ppm) or micrograms per cubic meter (µg/m³)]. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas. Secondary national standards are also available from EPA.

⁴ Unclassified (U): a pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.

Attainment (A): a pollutant is designated attainment if the state standard for that pollutant was not violated at any site in the area during a 3-year period.

Nonattainment (N): a pollutant is designated nonattainment if there was a least one violation of a state standard for that pollutant in the area. Non-attainment designations for ozone are classified as marginal, serious, severe, or extreme depending on the magnitude of the highest 8-Hour ozone design value at a monitoring site in a non-attainment area.

Nonattainment/Transitional (NT): is a subcategory of the nonattainment designation. An area is designated nonattainment/transitional to signify that the area is close to attaining the standard for that pollutant.

⁵ Secondary Standard

⁶ Nonattainment (N): any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant.

Attainment (A): any area that meets the national primary or secondary ambient air quality standard for the pollutant.

Unclassifiable (U): any area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant.

Maintenance (M): any area previously designated nonattainment pursuant to the CAAA of 1990 and subsequently redesignated to attainment subject to the requirement to develop a maintenance plan under Section 175A of the CAA, as amended.

⁷ ARB has identified lead and vinyl chloride as toxic air contaminants with no threshold of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Source: ARB 2014b, ARB 2015, EPA 2016b; data compiled by Ascent Environmental in 2016.

Emissions Inventory

Exhibit 4.2-1 summarizes an estimated emissions inventory of criteria air pollutants within the SVAB portion of Placer County for various source categories in 2012. According to the emissions inventory, mobile sources are the largest contributor to the estimated daily air pollutant levels of ROG and NO_x, accounting for approximately 47 percent and 73 percent of the total daily emissions, respectively. Area-wide sources (i.e., sources that occur over a large area rather than at a point source [e.g., smoke stack] or mobile-source [e.g., tailpipe]) account for approximately 76 percent and 56 percent of the county's PM₁₀ and PM_{2.5} emissions, respectively (ARB 2013). This is the current emissions inventory available for the SVAB portion of Placer County.

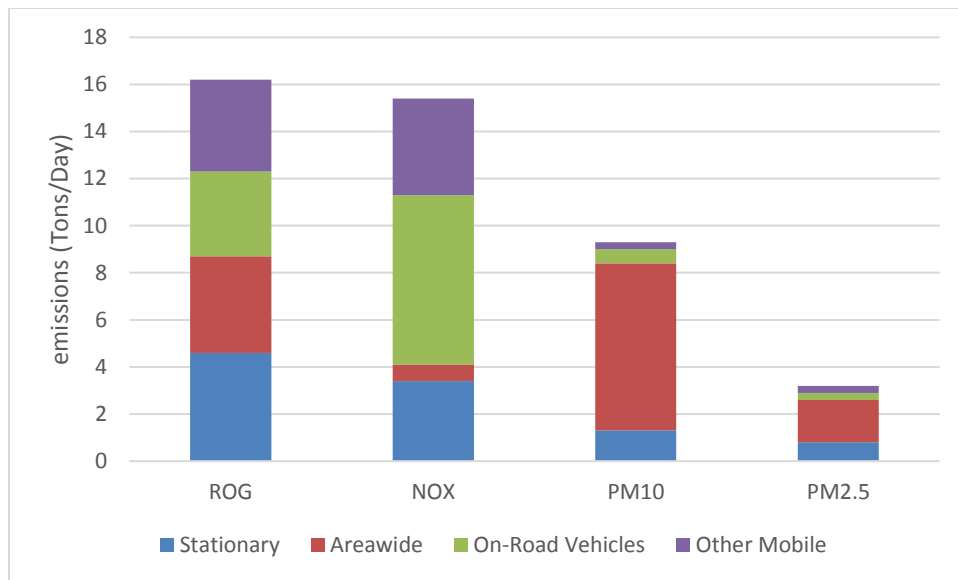


Exhibit 4.2-1 Sacramento Valley Air Basin Portion of Placer County 2012 Emissions Inventory

TOXIC AIR CONTAMINANTS

Concentrations of toxic air contaminants (TACs) are also used to indicate the quality of ambient air. A TAC is an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in trace quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

According to the *California Almanac of Emissions and Air Quality* (ARB 2014a), the majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel exhaust (diesel PM). Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emissions control system is being used. Unlike the other TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. However, ARB has made preliminary concentration estimates based on a PM exposure method. This method uses the ARB emissions inventory's PM₁₀ database, ambient PM₁₀ monitoring data, and the results from several studies to estimate concentrations of diesel PM. In addition to diesel PM, the TACs for which data are available that pose the greatest existing ambient risk in California are benzene, 1, 3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene. Sources of these TACs vary considerably and include (but are not limited to) consumer products, gasoline dispensing stations, auto repair and auto body coating shops, dry cleaning establishments, chrome plating and anodizing shops, welding operations, and other stationary sources.

Major sources of TACs in the vicinity of the project site are highways and roadways, associated with the presence of diesel PM emissions from vehicle exhaust. State Route 65 (SR 65) is located over 1,400 feet south of the project site. The annual average daily traffic (AADT) on the segment of SR 65 closest to the project ranges from 47,500 to 57,000 AADT. SR 193 is located approximately 1.8 miles east of the project site. The AADT on the segment of SR 193 closest to the project is 9,200. The Lincoln Regional Airport is located approximately 0.5 mile west of the project site. A Western Placer Unified School District bus yard is located southwest of the Nicolaus Road/Waverly Drive intersection.

ODORS

Odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; an odor that is offensive to one person may be perfectly acceptable to another (e.g., fast food restaurant). It is important to also note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word strong to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

Land uses that are major sources of odor typically include wastewater treatment and pumping facilities, sanitary landfills, transfer stations, recycling and composting facilities, and various industrial uses such as chemical manufacturing and food processing. There are no major sources of odors located adjacent to, or in the immediate vicinity of the project site.

SENSITIVE RECEPTORS

Sensitive land uses are generally considered to include those uses where exposure to pollutants could result in health-related risks to individuals. Residential dwellings and places where people recreate or congregate for extended periods of time such as parks or schools are of primary concern because of the potential for increased and prolonged exposure of individuals to pollutants.

Sensitive uses in the project vicinity include single-family, residential neighborhoods to the northeast and east, and south of the project site. The project will also result in new residential dwellings and parks located on the project site.

4.2.2 Regulatory Setting

The project site is located in the Placer County portion of the SVAB. Air quality at the project site is regulated by EPA, ARB, and the PCAPCD. Each of these agencies develops rules, regulations, policies, and/or goals to comply with applicable legislation. Although EPA regulations may not be superseded, State and local regulations may be more stringent.

CRITERIA AIR POLLUTANTS

Federal

EPA has been charged with implementing national air quality programs. The EPA air quality mandates are drawn primarily from the federal Clean Air Act (CAA), which was enacted in 1970. The most recent major amendments to the CAA were made by Congress in 1990.

The CAA required EPA to establish national ambient air quality standards (NAAQS). As shown in Table 4.2-3, EPA has established primary and secondary NAAQS for the following criteria air pollutants: ozone, CO, NO₂, SO₂, respirable and fine particulate matter (PM₁₀ and PM_{2.5}), and lead. The primary standards protect the public health and the secondary standards protect public welfare. The CAA also required each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The federal Clean Air Act Amendments of 1990 (CAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. EPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments, and whether implementation would achieve air quality goals. If EPA determines a SIP to be inadequate, a federal implementation plan that imposes additional control measures may be prepared for the nonattainment area. If an approvable SIP is not submitted or implemented within the mandated time frame, sanctions may be applied to transportation funding and stationary air pollution sources in the air basin.

State

ARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA). California law authorizes ARB to set ambient (outdoor) air pollution standards (California Health and Safety Code Section 39606) in consideration of public health, safety, and welfare (California Ambient Air Quality Standards [CAAQS] [Table 4.2-3]).

ARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above-mentioned criteria air pollutants. In most cases the CAAQS are more stringent than the NAAQS. Differences in the standards are generally explained by the health effects studies considered during the standard-setting process and the interpretation of the studies. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals.

The CCAA requires that all local air districts in the state endeavor to achieve and maintain the CAAQS by the earliest date practical. The act specifies that local air districts should focus particular attention on reducing the emissions from transportation and areawide emission sources, and provides districts with the authority to regulate indirect sources.

Among ARB's other responsibilities are overseeing local air district compliance with Federal and State laws, approving local air quality plans, submitting SIPs to EPA, monitoring air quality, determining and updating area designations and maps, and setting emissions standards for new mobile sources, consumer products, small utility engines, off-road vehicles, and fuels.

Local

PCAPCD attains and maintains air quality conditions in Placer County (including portions of the SVAB) through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean-air strategy of PCAPCD includes preparing plans for the attainment of ambient air quality standards, adopting and enforcing rules and regulations concerning sources of air pollution, and issuing permits for stationary sources of air pollution. PCAPCD also inspects stationary sources of air pollution and responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements programs and regulations required by the CAA, CAAA, and CCAA.

All projects in Placer County are subject to adopted PCAPCD rules and regulations in effect at the time of construction. Specific rules applicable to the construction of the project may include but are not limited to the following:

- ▲ PCAPCD Rule 202—Visible Emissions,
- ▲ PCAPCD Rule 217—Cutback and Emulsified Asphalt Paving Materials,
- ▲ PCAPCD Rule 218—Application of Architectural Coatings,
- ▲ PCAPCD Rule 228—Fugitive Dust, and
- ▲ PCAPCD Rule 501—Permit Requirements.

Specifically, Rule 228 – Fugitive Dust, establishes standards to be met by activities generating fugitive dust. It applies to all of Placer County and addresses fugitive dust generated by construction and grading activities, and by other land uses including recreation uses. Among the standards to be met is a prohibition on visible dust crossing the property boundary, generation of high levels of visible dust (dust sufficient to obscure vision by 40 percent), and controls on the track-out of dirt and mud on to public roads. The regulation also establishes minimum dust mitigation and control requirements. When an area to be disturbed is greater than one acre, and if required by a Condition of Approval or discretionary permit, a dust control plan must be submitted to and approved by PCAPCD before any construction activities (PCAPCD 2012: B-1).

Land Use Air Quality Mitigation Fund

An offsite mitigation program was adopted by the PCAPCD Board of Directors in 2001 (amended in 2008) that established guidelines for the use of air quality mitigation funds (Land Use Air Quality Mitigation Fund). Based on this policy, PCAPCD manages an off-site mitigation fee program to be utilized as an option for some development projects when on-site mitigation measures are insufficient to offset impacts to below the applicable thresholds. The fee rate is based on the cost-effectiveness factor reported by the latest ARB Carl Moyer Program Guideline, and the fee is applied per ton of ozone precursor emissions (either NO_x or ROG). If it is found that the applicant must pay a fee, the applicant may: 1) expend these funds to implement District-approved emissions reduction projects in the general vicinity of the project site, or 2) pay the District to administer emissions reduction projects in close proximity to the project. The timeframe for the mitigation payment would be based on discussions between the lead agency and PCAPCD. PCAPCD recommends that payment be provided either before construction or grading activities. PCAPCD is also open to other avenues for collection of fees such as “prior to final map for a subdivision” or “prior to building issuance for a commercial building permit” (PCAPCD 2012: 4-11).

City of Lincoln General Plan

The *City of Lincoln General Plan's* Land Use, Public Facilities and Services, Open Space and Conservation, and Health and Safety Elements provide a number of goals and polices aimed at improving energy efficiency, transportation efficiency, and reducing air emissions. The following policies are applicable to the project:

- ▲ **Policy HS- 3.3:** The City shall continue to support the recommendations found in the Placer County Air Quality Attainment Plan for the reduction of air pollutants.
- ▲ **Policy HS- 3.5:** The City shall require developments, where feasible, to be located, designed, and constructed in a manner that would minimize the production of air pollutants and avoid land use conflicts.
- ▲ **Policy HS- 3.6:** The City shall require consideration of alternatives or amendments that reduce emissions of air pollutant when reviewing project applications.
- ▲ **Policy HS- 3.8:** The City may require an analysis of potential air quality impacts associated with significant new developments through the environmental review process, and identification of appropriate mitigation measures prior to approval of the project development.
- ▲ **Policy HS- 3.10:** Coordinating with the PCAPCD, the City shall require large development projects to mitigate air quality impacts. As feasible, mitigations may include, but are not limited to the following: Providing bicycle access and bicycle parking facilities; Providing preferential parking for high-occupancy vehicles, car pools; or alternative fuels vehicles (including neighborhood electric vehicles or NEVs); and Establishing telecommuting programs or satellite work Centers.
- ▲ **Policy HS- 3.11:** The City shall require the use of natural gas or the installation of low emission, EPA-certified fireplace inserts in all open hearth fireplaces in new homes. The city shall promote the use of natural gas over wood products in space heating devices and fireplaces in all new homes and existing homes considering remodeling plans.

TOXIC AIR CONTAMINANTS

EPA and ARB regulate hazardous air pollutants (HAPs) and TACs, respectively, through statutes and regulations that generally require the use of the maximum available control technology or best available control technology for TACs to limit emissions. These, in conjunction with additional rules set forth by PCAPCD, described below in Subsection 11.2.3, establish the regulatory framework for TACs

Federal Hazardous Air Pollutant Programs

EPA has programs for identifying and regulating HAPs. Title III of the CAA directed EPA to promulgate national emissions standards for HAPs (NESHAP). The national emissions standards for HAPs may differ for major sources and for area sources of HAPs. Major sources are defined as stationary sources with potential to emit more than 10 tons per year (TPY) of any HAP or more than 25 TPY of any combination of HAPs; all other sources are considered area sources. The emissions standards are to be promulgated in two ways. First, EPA has technology-based emission standards designed to produce the maximum emission reduction achievable. These standards are generally referred to as requiring maximum available control technology for toxics. For area sources, the standards may be different, based on generally available control technology. Second, EPA also has health risk-based emissions standards, where deemed necessary, to address risks remaining after implementation of the technology-based NESHAP standards.

The CAA also required EPA to issue vehicle or fuel standards containing reasonable requirements that control toxic emissions of, at a minimum, benzene and formaldehyde. Performance criteria were established to limit mobile-source emissions of toxics, including benzene, formaldehyde, and 1,3-butadiene. In addition, the CAA required the use of reformulated gasoline in selected areas with the most severe ozone nonattainment conditions to further reduce mobile-source emissions.

State Programs for Toxic Air Contaminants

TACs in California are regulated primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807, Chapter 1047, Statutes of 1983) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588, Chapter 1252, Statutes of 1987). AB 1807 sets forth a formal procedure for ARB to designate substances as TACs. Research, public participation, and scientific peer review are required before ARB can designate a substance as a TAC. To date, ARB has identified more than 21 TACs, including diesel PM, and adopted EPA's list of HAPs as TACs.

Once a TAC is identified, ARB then adopts an airborne toxics control measure for sources that emit that particular TAC. If a safe threshold exists for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If no safe threshold exists, the measure must incorporate best available control technology for toxics to minimize emissions.

ARB has adopted diesel exhaust control measures and more stringent emission standards for various on-road mobile sources of emissions, including transit buses, and off-road diesel equipment (e.g., tractors, generators). Recent milestones included the low-sulfur diesel fuel requirement and tighter emissions standards for heavy-duty diesel trucks (effective in 2007 and subsequent model years) and off-road diesel equipment (2011). Over time, replacing older vehicles will result in a vehicle fleet that produces substantially lower levels of TACs than under current conditions. Mobile-source emissions of TACs (e.g., benzene, 1-3-butadiene, diesel PM) in California have been reduced substantially over the last decade; such emissions will be reduced further through a progression of regulatory measures (e.g., low emission vehicle/clean fuels and Phase II reformulated-gasoline regulations) and control technologies.

The Hot Spots Act requires that existing facilities that emit toxic substances above a specified level prepare an inventory of toxic emissions, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures.

Regional and Local Regulations for Toxic Air Contaminants

At the local level, air districts may adopt and enforce ARB's airborne toxic control measures. Under PCAPCD Rule 501 ("Permit Requirements") and PCAPCD Rule 502 ("New Source Review"), all sources that possess the potential to emit TACs are required to obtain permits from the district. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including new source review standards and air toxics control measures. PCAPCD limits emissions and public exposure to TACs through a number of programs.

Sources that require a permit are analyzed by PCAPCD (e.g., health risk assessment) based on their potential to emit TACs. If it is determined that the project would emit toxics in excess of a PCAPCD-established threshold standard of significance for TACs (i.e., 10 in one million or a hazard index greater than 1.0), sources have to implement the best available control technology (BACT) for TACs to reduce emissions. If a source cannot reduce the risk below the threshold standard of significance even after the BACT has been implemented, the air district will deny the permit required by the source. This helps to prevent new problems and reduces emissions from existing older sources by requiring them to apply new technology when retrofitting with respect to TACs.

ODORS

Because offensive odors rarely cause any physical harm, and federal and state air quality regulations do not contain any requirements for their control. PCAPCD has the authority to restrict and prevent the release of odorous air contaminants through Rule 205 (Nuisance):

Rule 205—Nuisance. A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons, or to the public, or which endanger the comfort, repose, health or safety of any such persons, or the public, or which cause to have a natural tendency to cause injury or damage to business or property. Any actions related to odors are based on citizen complaints to local governments and PCAPCD.

4.2.3 Environmental Impacts and Mitigation Measures

ANALYSIS METHODOLOGY

Construction

Short-term construction-related emissions of criteria air pollutants and precursors were calculated using the California Emissions Estimator Model (CalEEMod) Version 2013.2 computer program (South Coast Air Quality Management District [SCAQMD] 2013), as recommended by PCAPCD and other air districts in California. Modeling was based on project-specific information (e.g., size, number of units being built, area to be graded), where available; reasonable assumptions based on typical construction activities; and default values in CalEEMod that are based on the project's location and land use type. The modeling assumed that project construction/grading phases would begin in September 2016 and continue through August 2019, with construction/grading carried out over two phases. For a detailed description of model input and output parameters and assumptions, refer to Impact 4.2-1 discussion below and Appendix B.

Operations

Operational emissions of criteria air pollutants and precursors were estimated by evaluating a variety of emission sources and using different models. Mobile-source emissions were estimated using the emission factors provided in ARB's Emission Factors 2014 (EMFAC2014) model and an estimate of project-generated vehicle trips and VMT developed as part of the analysis presented in Chapter 4.10, "Transportation and Circulation." Emissions from natural gas and area-sources for both summer and winter were estimated using the applicable modules in CalEEMod. Emissions from consumer products and landscape maintenance

activities were estimated using CalEEMod as well (SCAQMD 2013). Operational emissions from all sources were estimated for full buildout of the project which is projected to occur by 2020.

The potential for project-generated traffic to result in concentrations of CO that exceed the NAAQS and CAAQS for this pollutant was evaluated using PCAPCD-recommended screening criteria. Because PCAPCD has not developed conservative screening methods for CO, the potential for CO hot-spots was further evaluated using a quantitative screening method recommended by the Sacramento Metropolitan Air Quality Management District (SMAQMD), as described in Impact 4.2-3, below.

Health risk from project-generated, construction- and operation-related emissions of TACs were assessed qualitatively. This assessment is based on the location from which construction- or operation-related TAC emissions would be generated by land uses developed under the project, as well as the duration during which TAC exposure would occur.

Similarly, the assessment of odor-related impacts is based on the types of odor sources associated with the land uses that would be developed under the project and their location relative to receptors.

THRESHOLDS OF SIGNIFICANCE

Based on the Placer County CEQA checklist and Appendix G of the State CEQA Guidelines, an air quality impact is considered significant if implementation of the project would do any of the following:

- ▲ violate any air quality standard or contribute substantially to an existing or projected air quality violation (Table 4.2-3);
- ▲ conflict with or obstruct implementation of the applicable air quality plan;
- ▲ expose sensitive receptors to substantial pollutant concentrations (including TACs/HAPs); or
- ▲ create objectionable odors affecting a substantial number of people.
- ▲ result in a cumulatively considerable net increase of any criteria air pollutant for which the project region is in nonattainment under any applicable National or State ambient air quality standards (including releasing emissions that exceed quantitative standards for ozone precursors);

As stated in Appendix G of the State CEQA Guidelines, the significance criteria established by the applicable air district may be relied upon to make the above determinations. Thus, as identified by PCAPCD, an air quality impact also is considered significant if implementation of the project would result in:

- ▲ a net increase in short-term construction-related or long-term operation-related (regional) emissions of ROG, NO_x, or PM₁₀ that exceed *the project-level threshold* of 82 pounds per day (lbs/day) (PCAPCD 2012:2-2). The thresholds of 82 lbs/day are based on the limit of 15 tons per year that is mandated for permitting of individual stationary sources of emissions (e.g., factories, industrial facilities, gasoline stations) by the New Source Review program (PCAPCD Rule 502). One objective of the New Source Review program is to ensure that air quality is not significantly degraded from the addition of new and modified industrial sources (PCAPCD 2012:2-2 and 2-3);
- ▲ a net increase in long-term operation-related (regional) emissions of ROG or NO_x that exceed the cumulative threshold of 10 lbs/day (PCAPCD 2012:2-3). While PCAPCD cautions against the use of this threshold as a determination of significance (e.g., determination of need for an EIR), the District established this cumulative threshold based on the requirement of Rule 502 (“New Source Review”) that any stationary source that emits more than 10 lbs/day of ROG and NO_x must employ best available control technology (PCAPCD 2012:2-3 and 2-4). Therefore, PCAPCD considers the thresholds of 10 lbs/day to represent the allowable incremental contribution of a land use development project while still progressing toward overall attainment within Placer County; and/or

- ▲ exposure of sensitive receptors to TAC emissions that would exceed 10 in 1 million for the carcinogenic risk (i.e., the risk of contracting cancer) or a noncarcinogenic Hazard Index of 1 for the maximally exposed individual (PCAPCD 2012:E-3).

ISSUES OR POTENTIAL IMPACTS NOT DISCUSSED FURTHER

All air quality issues addressed in the significance criteria are evaluated below.

IMPACT ANALYSIS

Impact 4.2-1: Short-term, construction-generated emissions of ROG, NO_x, PM₁₀, and PM_{2.5}.

Short-term, construction-generated emissions would not exceed PCAPCD's threshold for ROG or PM₁₀; however, NO_x emissions would exceed PCAPCD's significance threshold during the overlap between grading and utilities construction for Phase 1 and Phase 2 in 2016 and 2017. Thus, short-term construction emissions of criteria air pollutants and precursors could violate or contribute substantially to an existing or projected air quality violation, expose sensitive receptors to substantial pollutant concentrations, and/or conflict with air quality planning efforts. This impact would be **significant**.

Construction-related activities would result in project-generated emissions of ROG, NO_x, PM₁₀, and PM_{2.5} from site preparation (e.g., excavation, grading, and clearing), utilities installation, off-road equipment, material delivery, worker commute exhaust emissions, vehicle travel, building construction, asphalt paving, application of architectural coatings, and other miscellaneous activities. Fugitive dust emissions are associated primarily with site preparation and grading and vary as a function of soil silt content, soil moisture, wind speed, and area of disturbance. Ozone precursor emissions of ROG and NO_x are associated primarily with exhaust from construction equipment, haul truck trips, and worker trips. ROG emissions are also generated during asphalt paving and the application of architectural coatings.

Project construction is assumed to occur between 2016 and 2019. Construction activities associated with project development would include excavation and relocation of soil on the site, backfilling and compaction of soils, construction of utilities and service systems (i.e., potable water conveyance, domestic well, wastewater conveyance, sewer lift station, storm water drainage facilities, three drainage basins, underground electrical, and construction of proposed residential and mixed use land uses). With the exception of the potential for offsite utility infrastructure (e.g., connecting pipelines), all construction activities would take place within approximately 145 +/- acres of the 194.2-acre project site. The project would include bore and jack operations under a segment of Markham Ravine to allow installation of sewer lines without encroaching within the waterway and surrounding open space corridor. The project would generate a "cut" volume of 400,000 cubic yards (cy) and "fill" volume of 350,000 cy. After accounting for anticipated shrinkage of the soil material, the grading is expected to be balanced with no import or export of materials required. Construction is anticipated to occur between 7:00 a.m. and 7:00 p.m., Monday through Friday.

The project would be developed in two phases. Construction of Phase 1 is anticipated to begin as early as late fall of 2016 and would take place on approximately 31 +/- acres in the easterly portion of the project site. Activities would include initial site preparation (grubbing, clearing, and grading) over a two-month period, followed by infrastructure development over a four-month period, and then construction of 122 residences between 2017 and 2019 (i.e., construction of 36 residences in 2017, 48 residences in 2018, and 38 residences in 2019). Phase 1 is anticipated to take place over a 36-month period, ending in late 2019. Construction of Phase 2 is anticipated to begin as early as late fall 2016 on approximately 160 +/- acres located in the westerly portion of the project site. Similar to Phase 1, activities would include initial site preparation (grubbing, clearing, and grading) over the first two months, followed by infrastructure development over a six-month period, and then construction of 453 residences between 2017 and 2019 (i.e., construction of approximately 144 residences in 2017, 192 residences in 2018, and 117 residences in 2019). Buildout of the proposed mixed use area is anticipated in 2018. Phase 2 is anticipated to take place

over a 36-month period, ending in late 2019. Grading activities for both phases would overlap in 2016 while utilities construction would overlap in 2016 and 2017. It is assumed that building construction activities would overlap with architectural coating in each year.

Dust control measures required by PCAPCD Rule 228, which include measures that minimize track-out onto paved public roadways, limit vehicle travel on unpaved surfaces to 15 miles per hour (mph), and stabilize storage piles and disturbed areas, would be enforced and would reduce fugitive dust PM₁₀ and PM_{2.5} emissions. Maximum daily construction emissions of criteria air pollutants and precursors are summarized by construction phase and year in Table 4.2-4. Refer to Appendix B for a detailed summary of the modeling assumptions, inputs, and outputs.

Table 4.2-4 Summary of Maximum Daily Emissions of Criteria Air Pollutants and Precursors Associated with Project Construction¹				
Source	lb/day			
	ROG	NO _x	PM ₁₀	PM _{2.5} ²
Phase 1				
2016	7	75	13	7
2017	17	42	2	2
2018	15	24	2	2
2019	19	39	3	2
Phase 2				
2016	9	99	30	10
2017	60	42	5	3
2018	61	28	5	2
2019	50	42	6	3
Maximum Daily Emissions				
2016	16	<u>174</u>	43	17
2017	77	<u>84</u>	7	5
2018	76	52	7	4
2019	68	81	9	5
PCAPCD Thresholds of Significance	82	82	82	-
Exceed Significance Criteria?	No	Yes	No	-
Notes: lb/day = pounds per day; NO _x = oxides of nitrogen; PM ₁₀ = respirable particulate matter; PM _{2.5} = fine particulate matter; ROG = reactive organic gases. Underlined values indicate emissions that would exceed local significance criteria. Architectural coating emissions were manually estimated based on the number of units to be constructed per year for each phase, assuming compliance with PCAPCD Rule 218. ¹ Higher daily emissions between the summer and winter seasons are shown. ² Daily emissions are reported for PM _{2.5} for information purposes, there is no PCAPCD threshold for this pollutant. See Appendix B for detailed input parameters and modeling results. Source: Modeling performed by Ascent Environmental in 2016				

As shown in Table 4.2-4, construction activities in 2016 and 2017, which include grading and utilities construction activities for Phase 1 and Phase 2, would result in emissions of NO_x that exceed the PCAPCD-recommended threshold of 82 lbs/day. NO_x, as well as ROG, is a precursor to ground-level ozone. As discussed in Section 4.2.1, "Environmental Setting," emissions of NO_x and ROG photochemically react and produce ozone, which can cause acute and chronic health effects; however, once grading and utilities

construction cease, emissions would be below the applicable NO_x thresholds. Short-term construction-generated emissions would not exceed PCAPCD's significance thresholds for ROG or PM₁₀. Because construction-generated PM₁₀ emissions would be less than the applicable threshold of 82 lbs/day, and because PM_{2.5} is a subset of PM₁₀, it is not anticipated that construction activity would result in concentrations of PM_{2.5} that would violate or substantially contribute to a violation of the ambient air quality standards for PM_{2.5}. In addition, control measures under PCAPCD Rule 228 for PM₁₀ are effective for PM_{2.5}. However, because daily NO_x emissions would exceed the PCAPCD threshold of significant, this impact would be **significant**.

Mitigation 4.2-1a: Reduce short-term construction-related NO_x emissions.

The project applicant shall comply with the following measures onsite during construction activities to reduce emissions of NO_x:

- ▲ The prime construction contractor shall submit to PCAPCD a comprehensive inventory (e.g., make, model, year, emission rating) of all the heavy-duty off-road equipment (50 horsepower or greater) that would be used for 40 or more hours, in aggregate, during a construction season. If any new equipment is added after submission of the inventory, the prime contractor shall contact PCAPCD before the new equipment is used. At least three business days before the use of subject heavy-duty off-road equipment, the project representative shall provide PCAPCD with the anticipated construction timeline including start date, name, and phone number of the property owner, project manager, and onsite foreman.
- ▲ Before approval of Grading or Improvement Plans, whichever occurs first, the applicant shall submit for PCAPCD approval, a written calculation demonstrating that the heavy-duty (> 50 horsepower) off-road vehicles to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a project wide fleet-average 20 percent reduction in NO_x emissions as compared to ARB statewide fleet average emissions. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available. The calculation shall be provided using PCAPCD's Construction Mitigation Calculator.
- ▲ During construction the contractor shall use existing power sources (e.g., power poles) or clean fuel (e.g., gasoline, biodiesel, natural gas) generators rather than temporary diesel power generators to the extent feasible.
- ▲ During construction, the contractor shall minimize idling time to a maximum of five minutes for all diesel powered equipment.
- ▲ Signs shall be posted in the designated queuing areas of the construction site to remind off-road equipment operators that idling is limited to a maximum of 5 minutes.

Mitigation Measure 4.2-1b: Participate in PCAPCD's Land Use Air Quality Mitigation Fund.

The applicant shall participate in PCAPCD's offsite mitigation program, the Land Use Air Quality Mitigation Fund, by paying the equivalent amount of fees for the project's contribution of NO_x that exceeds the 82 lbs/day threshold, or the equivalent as approved by PCAPCD. As emissions of NO_x would be higher during the initial stages of project implementation (i.e., 2016 and 2017), participation in PCAPCD's offsite mitigation program would only be necessary to offset NO_x emissions during that period. The applicable fee rates of the program would also change over time. The actual amount to be paid shall be determined, and satisfied per current guidelines, at the time of approval of the Grading or Improvement Plans.

Mitigation Measure 4.2-1c: Submit Construction Emission/Dust Control Plan to PCAPCD.

Prior to approval of grading or improvement plans for each phase of the project, on sites greater than one acre, the applicant shall submit a Construction Emission/Dust Control Plan to PCAPCD. Construction contractors

shall not break ground prior to receiving PCAPCD approval of the Construction Emission/Dust Control Plan, and delivering that approval to the City.

Significance after Mitigation

Implementation of the onsite exhaust control measures outlined in Mitigation Measure 4.2-1a would reduce NO_x emissions from off-road equipment by 20 percent (PCAPCD 2012:A-1). However, mitigated emissions would still exceed the PCAPCD NO_x threshold of 82 lbs/day during ozone season for year 2016. It should be noted that the 20 percent reduction achieved through implementation of onsite exhaust control measures would reduce emissions of NO_x to 139 lbs/day for the year 2016 and 67 lbs/day for 2017; therefore, emissions from 2017 to the buildout year of 2019 would not exceed PCAPCD thresholds for NO_x emissions. For the year 2016, the applicant would be required to pay a fee to the PCAPCD Land Use Air Quality Mitigation Fund, as outlined in Mitigation Measure 4.2-1b, which supports fleet modernization, repowers, retrofits, and fleet expansions of heavy-duty on- and off-road mobile vehicles/equipment; alternative fuels infrastructure or low-emission fuel purchases; new or expanding alternative transit service programs; light-duty low-emission vehicle programs; public education; repower of agricultural pump engines; and other beneficial air quality projects. Mitigation fees collected from land use developments by the PCAPCD are distributed through the PCAPCD's annual Clean Air Grant Program, which funds emission reduction projects and the aforementioned programs. The fee rate is based on the cost-effectiveness factor updated by the latest ARB Carl Moyer Program Guideline. Cost effectiveness is a measure of the dollars provided for each ton of covered emission reductions, which ARB may adjust to reflect emission reduction market conditions. Through providing an in-lieu fee toward the funding of the PCAPCD's programs, the project's daily emissions of NO_x would be offset to below the PCAPCD-recommended threshold for NO_x. Therefore, this impact would be reduced to a **less-than-significant** level.

Impact 4.2-2: Long-term, operation-related (regional) emissions of criteria air pollutants and precursors.

Operation of the project under full buildout would not exceed the PCAPCD significance threshold for ROG, NO_x, or PM₁₀. Thus, long-term operational emissions of criteria air pollutants and precursors would not violate or contribute substantially to an existing or projected air quality violation, expose sensitive receptors to substantial pollutant concentrations, and/or conflict with air quality planning efforts. This impact would be **less than significant**.

Mobile-source emissions of criteria air pollutants and precursors would result from resident and visitor trips and other associated vehicle trips (e.g., deliveries of supplies, maintenance vehicles) under the project. Table 4.10-4 in Chapter 4.10, "Transportation and Circulation," shows the project's trip generation estimates. The project would generate up to 5,904 daily trips, with trips generated distributed to the surrounding roadway network based on existing travel patterns in the area and locations of nearby complementary land uses. Trips were estimated using the most conservative (in terms of trip generation) mix of land uses, which assumes that 54 multi-family residential units will be built in the mixed-use area. Trip generation at the sports fields was estimated based on expected travel patterns of two teams practicing at the site during a weekday afternoon. The project would generate a peak daily VMT of 48,325 (47,933 from residential development and 392 from the sports fields). Project VMT is expected to reduce under 30,000 on the peak day under cumulative conditions when other planned complementary land uses are developed in the area. The higher VMT data at project buildout is used to estimate daily operational emissions to provide a conservative analysis.

Other operational sources of emissions would include natural gas-fueled equipment used for space and water heating, and landscaping equipment such as mowers and leaf blowers. The application of architectural coatings, as part of regular maintenance, and the use of various consumer products such as cleaning chemicals would also generate emissions of ROG.

Table 4.2-5 summarizes the maximum daily project-generated, operation-related emissions of criteria air pollutants at full buildout in 2020. As shown in the table, operation-related activities would result in

unmitigated project-generated daily emissions of ROG, NO_x, PM₁₀ and PM_{2.5} that are less than the PCAPCD-recommended thresholds of significance. Ambient air quality standards (as described in Table 4.2-3) define clean air and are established to protect public health. An air quality standard defines the maximum amount of a pollutant that can be present in outdoor air without harm to the public's health. Attainment strategies and standards are developed by ARB and EPA to achieve the ambient air quality strategies. PCAPCD considers both the health-based air quality standards as well as the attainment strategies developed in conjunction with ARB and EPA. The threshold of 82 lb per day is based on 15 tons per year and is established by PCAPCD; emissions greater than these volumes are considered by PCAPCD to have adverse effects on public health and would violate ambient air quality standards (PCAPCD 2012: 24).

Because full buildout of the project would not exceed thresholds, the incremental operation of each phase would not exceed PCAPCD-recommended thresholds. Therefore, this impact would be **less than significant**.

Table 4.2-5 Summary of Maximum Daily Operational Emissions of Criteria Air Pollutants and Precursors during Summer and Winter at Full Buildout (2020)

Source	lbs/day			
	ROG	NO _x	PM ₁₀	PM _{2.5} ²
Area Source ¹	36	1	1	1
Energy	1	5	<1	<1
Mobile Source ²	4	32	37	10
Maximum Daily Emissions	39	38	39	12
PCAPCD Thresholds of Significance				
Mass Emissions ³	82	82	82	–
Exceed Significance Criteria?	No	No	No	–
Notes: lb/day = pounds per day; NO _x = oxides of nitrogen; PM ₁₀ = respirable particulate matter; PM _{2.5} = fine particulate matter; ROG = reactive organic gases Totals may not sum exactly because of rounding				
¹ Area-source emissions include natural gas consumption, emissions from landscaping, application of architectural coatings, and consumer products, and are estimated based on default model settings. It was assumed that all of the residential units would be equipped with natural gas fireplaces.				
² Mobile-source emissions were estimated based on emission factors generated by EMFAC2014 and VMT numbers generated by Fehr and Peers for Chapter 4.10, Transportation and Circulation (Fehr and Peers 2016). Estimates also include fugitive dust emissions from vehicle travel on unpaved roads.				
³ Mass emission significance criteria apply to the sum of area, energy and mobile sources.				
See Appendix B for detailed input parameters and modeling results.				
Source: Modeling conducted by Ascent Environmental, Inc. in 2016.				

Development of the site as proposed would alter the existing landscape from undeveloped disturbed land to a residential community, but the project site has been designated for urban development in the City's General Plan and Zoning Ordinance. The project would require a General Plan Amendment from the City of Lincoln to amend existing land use designations from Business Park to Medium Density Residential, Park and Open Space for the western portion of the property; Medium Density Residential to Low Density Residential and Park for a small area on the eastern portion of the property; Agriculture to Mixed Use for an area adjacent to Nicolaus Road; and an increase in the area designated as Open Space around the portion of the Markham Ravine tributary that traverses the site. The "Remainder Area" on the eastern portion of the property south of the Markham Ravine tributary is currently designated as Low Density Residential and Medium Density Residential and is not proposed to be changed as a part of this entitlement request.

The project would also require a Rezone from the City of Lincoln from its existing zoning as Industrial to Single Family Residential (Residential-1 PD), Open Space, Park, and Commercial (see Exhibit 3-4). The "Remainder Area" is currently zoned Industrial and is not proposed to be changed as a part of the entitlement request.

These requested designation changes if the project is approved by the City of Lincoln would ensure that the project does not conflict with the City's General Plan or Zoning Ordinance. Although the project would require a General Plan Amendment and Rezone, it would introduce residential development at a site that is designated for urban development. Moreover, the project's operational emissions would be well below PCAPCD-recommended daily thresholds and it incorporates natural gas-only fireplaces in accordance with the City's General Plan. The project would mitigate its construction impacts in accordance with PCAPCD guidance. The project would be consistent with the City's General Plan policies listed above. Therefore, the project would not be expected to conflict with PCAPCD's planning efforts.

Mitigation Measures

No mitigation is required.

Impact 4.2-3: Mobile-source CO concentrations.

Though buildout of the project would result in additional vehicle trips on the surrounding roadway network, project operation would not result in increases in traffic such that quantitative screening criteria for local CO emissions would be triggered. Therefore, the project would not result in increased concentrations of CO that would expose sensitive receptors to unhealthy levels. This impact would be **less than significant**.

Local mobile-source CO emissions near roadway intersections are a direct function of traffic volume, speed, and delay. Transport of CO is extremely limited because it disperses rapidly with distance from the source under normal meteorological conditions. However, under certain specific meteorological conditions, CO concentrations near roadways and/or intersections may reach unhealthy levels at nearby sensitive land uses, such as residential units, schools, and childcare facilities. Thus, high local CO concentrations are considered to have a direct influence on the receptors they affect.

An appropriate qualitative screening procedure is provided in the procedures and guidelines contained in Transportation Project-Level Carbon Monoxide Protocol to determine whether a project poses the potential for a CO hotspot (UCD ITS 1997). This is the protocol recommended by the California Department of Transportation (Caltrans) for project-level air quality analysis needed for federal conformity determinations, the National Environmental Policy Act (NEPA), and CEQA. The protocol is the standard method for project-level CO analysis used by Caltrans. A CO hotspot is an area of localized CO pollution that is caused by severe vehicle congestion on major roadways, typically near intersections. According to the protocol, projects may worsen air quality if they increase the percentage of vehicles in cold start modes by two percent or more; significantly increase traffic volumes (by five percent or more) over existing volumes; or worsen traffic flow, defined for signalized intersections as increasing average delay at intersections operating at Level of Service (LOS) E or F, or causing an intersection that would operate at LOS D or better without the project, to operate at LOS E or F. According to PCAPCD screening criteria, a project can potentially exceed the CO standard if peak-hour LOS on any street or intersection (signalized or unsignalized) in the project vicinity would be degraded to an unacceptable LOS (i.e., E or F); or if a project would substantially worsen an already existing unacceptable peak hour (i.e., LOS E or F) at an intersection by 10 seconds or more when project-generated traffic is included (PCAPCD 2012: 4-2 to 4-3).

Based on the traffic study conducted for the project (see Table 4.10-7 in Chapter 4.10, "Transportation and Circulation"), some signalized intersections would operate at LOS E or LOS F with the project under cumulative conditions. Because PCAPCD has not developed conservative screening methods for CO, the potential for CO hot-spots was further evaluated using a quantitative screening method recommended by the SMAQMD (SMAQMD 2014). SMAQMD's recommended screening methodology states that the project would result in a less-than-significant impact to air quality for local CO if the following criteria are met:

- ▲ The project would not cause traffic levels of more than 31,600 vehicles per hour at an affected intersection;

- ▲ The project would not contribute traffic to a tunnel, parking garage, bridge underpass, urban street canyon, below-grade roadway; or other location in which horizontal or vertical mixing of air would be substantially limited; and
- ▲ The mix of vehicle types at the intersection is not anticipated to be substantially different from the County average (as identified by the EMFAC or CalEEMod models).

As shown in Exhibit 4.10-9 of Chapter 4.10, "Transportation and Circulation," the maximum cumulative peak hour traffic volumes, including traffic generated by the project at pertinent intersections, would be well below 31,600. Therefore, none of the intersections would be anticipated to accommodate volumes of traffic that would exceed 31,600 vehicles per hour. Also, because of stricter vehicle emissions standards in newer cars, new technology, and increased fuel economy, future CO emissions would be substantially lower than those under existing conditions; therefore, emissions of CO are projected to continue to decrease (EMFAC 2014). Furthermore, affected intersections would not contribute to traffic to a tunnel, parking garage, bridge underpass, urban street canyon, below-grade roadway, or other location in which horizontal or vertical mixing of air would be substantially limited. While the mix of vehicle types at the affected intersection would not be substantially different from Sacramento County, for which the guidance is based, peak-hour volumes would be substantially below the 31,600 vehicles per hour threshold. Thus, even though there would be more vehicle trips under the project at buildout than under existing conditions, project-generated local mobile-source CO emissions would not result in or substantially contribute to concentrations that exceed the 1-hour or 8-hour ambient air quality standards for CO. As a result, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 4.2-4: Exposure of sensitive receptors to TACs.

Construction-related activities would result in temporary, short-term project-generated emissions of TACs, particularly diesel PM. However, relatively low mass emissions of diesel PM would be generated during the short duration of project construction. Also, TAC-emitting construction activity would not be centralized around any single location on the project site throughout the construction period. For these reasons and the highly dispersive properties of diesel PM before it reaches nearby sensitive receptors, construction-related TAC emissions would not expose sensitive receptors to an incremental increase in cancer risk that exceeds 10 in one million or a hazard index greater than 1.0. TACs associated with long-term operations of the project would also be minimal and limited. Future sensitive receptors introduced as part of the project would not be exposed to incremental health risks greater than PCAPCD-recommended thresholds. Therefore, levels of TACs from project-related construction and operations would not result in health risk exposures at offsite and onsite sensitive receptors. This impact would be **less than significant**.

Particulate exhaust emissions from diesel-fueled engines (i.e., diesel PM) were identified as a TAC by ARB in 1998. The potential cancer risk from the inhalation of diesel PM, as discussed below, outweighs the potential for all other health impacts (i.e., non-cancer chronic risk, short-term acute risk) and health impacts from other TACs. As a result, diesel PM is the primary TAC of concern for this analysis and is discussed because it is known to be emitted during construction and operation activities. Other TACs (e.g., benzene, 1,3-butadiene, hexavalent chromium, formaldehyde, methylene chloride) are primarily associated with industrial operations, so the project would not be a source of emissions for these TACs. The exposure of sensitive receptors to TAC emissions from project-generated construction and operational sources are discussed separately below.

Construction

Construction-related activities would result in temporary, short-term project-generated emissions of diesel PM from the exhaust of off-road, heavy-duty diesel equipment used during site preparation (e.g., site clearing, grading, and utilities construction); paving; application of architectural coatings; as well as on-road truck travel and other miscellaneous activities. For construction activity, diesel PM is the primary TAC of

concern. On-road diesel-powered haul trucks traveling to and from the construction area to deliver materials and equipment are less of a concern because they would not stay on the site for long durations.

The potential cancer risk from the inhalation of diesel PM outweighs the potential for all other health impacts (i.e., non-cancer chronic risk, short-term acute risk) and health impacts from other TACs (ARB 2003), so diesel PM is the focus of this discussion. Based on the emission modeling conducted and presented in Table 4.2-4 above, maximum daily exhaust emissions of PM₁₀, considered a surrogate for diesel PM, would not exceed 9 lb/day during the most intense construction activities. Emissions would reduce once grading and utilities construction is complete for both phases. Furthermore, diesel PM would be generated from different portions of the project site rather than a single location, and different types of construction activities (e.g., site preparation, paving, building construction) would not occur at the same place at the same time.

The dose to which receptors are exposed is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for any exposed receptor. Thus the risks estimated for an exposed individual are higher if a fixed exposure occurs over a longer period of time. According to OEHHA, HRAs, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70- or 30-year exposure period; however, such assessments should be limited to the period/duration of activities that generate TAC emissions (OEHHA 2012:11-3). Consequently, it is important to consider that the use of off-road heavy-duty diesel equipment would be limited to the periods of construction and only during the buildout period when new facilities are constructed.

Also important to consider is the proximity of nearby sensitive receptors. Studies show that diesel PM is highly dispersive (e.g., diesel PM concentrations decrease by 70 percent at 500 feet from the source) (Zhu et al. 2002:1032), and receptors must be in close proximity to emission sources to result in the possibility of exposure to concentrations of concern. The closest existing sensitive receptors are located within 50 feet to the north and to the east of the project site where construction activities could take place. However, construction activities would not occur closest to these receptors for extended periods of time. Construction-related activities that may produce diesel PM would be short-term in nature, and; therefore, would not subject sensitive receptors to prolonged exposure. Other sensitive receptors are located at greater distances from the project site. Given the locations of potential receptors relative to potential diesel PM emission sources and the temporary nature of construction activities within specific locations on the project site, the concentrations and durations of any diesel PM exposure that might occur would be limited.

Moreover, implementation of Mitigation Measure 4.6-1, provided in Section 4.6 "Noise," which requires construction staging areas to be located as far as possible from sensitive receptors, would have the added benefit of further limiting the amount of time diesel construction equipment operates near sensitive receptors.

Therefore, considering the relatively low mass of diesel PM emissions that would be generated during project construction, the relatively short duration of construction activities within specific portions of the project site, and the highly dispersive properties of diesel PM, construction-related TAC emissions would not expose sensitive receptors to an incremental increase in cancer risk that exceeds 10 in one million or a hazard index greater than 1.0.

Long-Term Operation

The project could include limited long-term operation of sources of diesel PM such as diesel-powered delivery trucks. Because the project proposes primarily residential uses, these types of diesel PM-generating activities would be limited and may occur mostly from the proposed mixed-use area. Because of these reasons, delivery trips are expected to be limited. Furthermore, any delivery trucks onsite would not typically leave their engines running for an extended length of time given that they are required to limit idling time to 5 minutes by the California airborne toxics control measure incorporated in Title 13, Section 2485 of the

California Code of Regulations. Any stationary sources such as backup diesel generators would require Authority to Construct and Permit to Operate permits from the PCAPCD per Rule 501, and risk levels under stationary source rules would not be exceeded. Given that the level of diesel PM-generating activity would be limited, that none of these diesel PM sources would operate for extended periods of time, the highly dispersive properties of diesel PM, operation-related TAC emissions would not expose sensitive receptors to an incremental increase in cancer risk that exceeds 10 in one million or a hazard index greater than 1.0.

A Western Placer Unified School District bus yard is located southwest of the Nicolaus Road/Waverly Drive intersection. The bus yard boundary is located over 100 feet away from the nearest proposed residential units within open space parcels in between. The bus yard building is located over 200 feet away from the boundary of the closest residential parcel.

Emissions from school buses can vary depending on various factors, including bus type, age, and maintenance, and the amount of time spent idling. Health impacts from exhaust exposure include eye and respiratory irritation, enhanced respiratory allergic reactions, asthma exacerbation, increased cancer risk, and immune system degradation. Generally, children are more vulnerable to air pollutants because of their higher inhalation rates, narrower airways, and less mature immune systems.

In response to the above issue, ARB adopted an Airborne Toxic Control Measure (ATCM) as part of the Particulate Matter Risk Reduction Plan to specifically deal with diesel emissions from school buses. This measure became effective July 16, 2003. The school bus-idling ATCM includes the following requirements:

- ▲ The driver of a school bus or vehicle, transit bus, or heavy-duty vehicle (other than a bus) shall manually turn off the bus or vehicle upon arriving at a school and shall restart no more than 30 seconds before departing. A driver of a school bus or vehicle shall be subject to the same requirement when operating within 100 feet of a school and shall be prohibited from idling more than 5 minutes at each stop beyond schools, such as parking or maintenance facilities, school bus stops, or school activity destinations. A driver of a transit bus or heavy duty vehicle (other than a bus) shall be prohibited from idling more than 5 minutes at each stop within 100 feet of a school. Idling necessary for health, safety, or operational concerns shall be exempt from these restrictions.
- ▲ The motor carrier of the affected bus or vehicle shall ensure that drivers are informed of the idling requirements, track complaints and enforcement actions, and keep track of driver education and tracking activities.

According to ARB, implementation of the above requirements would eliminate unnecessary idling for school buses and other heavy-duty vehicles, thus reducing localized exposure to TAC emissions and other harmful air pollution emissions at and near schools and protecting children from unhealthy exhaust emissions.

On December 12, 2008, ARB also approved the Truck and Bus regulation to significantly reduce diesel PM and NO_x emissions from existing diesel vehicles operating in California. Diesel-fueled school buses with a Gross Vehicle Weight Rating over 14,000 pounds are subject to the regulation. Owners must retire school buses manufactured before April 1, 1977, by January 1, 2012. Remaining school buses must have particulate filters (that reduce diesel PM emissions by 85 percent) installed according to a schedule set by ARB. ARB also operates the Lower-Emission School Bus Program that provides funding for purchasing new, lower-emitting school buses, and for retrofitting buses with particulate filters to reduce particulate emissions.

While the exact makeup of school buses at the yard is not known, operators of school buses at the bus yard would be required to comply with ARB regulations listed above. Therefore, future residents of the project would not be expected to be exposed to an incremental increase in cancer risk that exceeds 10 in one million or a hazard index greater than 1.0.

In summary, project-related construction and operational activities would not expose nearby as well as onsite sensitive receptors to incremental increases in cancer, chronic, and acute risk that exceed applicable

thresholds. Therefore, the levels of health risk exposure to visitors, residents, and workers on or near the project area would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 4.2-5: Exposure of sensitive receptors to odors.

The project would introduce new odor sources into the area (e.g., diesel exhaust emissions from delivery trucks). However, these types of odor sources would be limited and infrequent because of the types of uses proposed (i.e., residential). Moreover, these types of odor sources already operate in and near the project area and do not result in odor complaints. Also, the project would not locate land uses in close proximity to any existing odor sources. The sewer lift station would be placed underground or enclosed to control odors. This impact would be **less than significant**.

Minor odors from the use of heavy duty diesel equipment and the laying of asphalt during construction activities would be intermittent and temporary, and would dissipate rapidly from the source with an increase in distance. While buildings and facilities would be constructed over two phases throughout the buildout period, these types of odor-generating activities would not occur at any single location or within close proximity to offsite receptors for an extended period of time.

Operations would include a limited number of diesel-fueled trucks delivering material to the residential and mixed-use areas; however, these activities would be fairly limited and infrequent. Uses proposed under the project, such as residential units, are not typically considered to be sources of objectionable odors. Also, any facility developed under the project would be subject to PCAPCD Rule 205 regarding the control of nuisances, including odors, which states that a person shall not discharge from any source such quantities of air contaminants which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public.

Implementation of the project would not locate people in proximity to existing odor sources. There are no sources of objectionable odors, such as landfills or wastewater treatment facilities, near the project site. While a sewer lift station is proposed to be constructed on the south side of the project site, the wells and pumps would be in a structure below grade, and the electrical controls and mechanical valves will be in a structure above grade, which would provide both noise attenuation and odor control. Because the project would not result in the frequent exposure of a substantial number of members of the public to objectionable odors, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

4.3 GREENHOUSE GAS EMISSIONS

This section presents a brief summary of the current state of climate change science and greenhouse gas (GHG) emissions sources in California; a summary of applicable regulations; quantification of project-generated GHG emissions and discussion about their potential contribution to global climate change; and analysis of the project's resiliency to climate change-related risks. In addition, mitigation measures are recommended to reduce the project's potentially significant impacts.

4.3.1 Environmental Setting

GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

The Physical Scientific Basis

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface and a smaller portion of this radiation is reflected back toward space. This absorbed radiation is then emitted from the earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. The earth has a much lower temperature than the sun; therefore, the earth emits lower frequency radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth. Without the greenhouse effect, earth would not be able to support life as we know it.

Prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO₂), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Human-caused emissions of these GHGs in excess of natural ambient concentrations are believed responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth's climate, known as global climate change or global warming. It is "extremely likely" that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in GHG concentrations and other anthropogenic factors together (Intergovernmental Panel on Climate Change [IPCC] 2014:3, 5).

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about one day), GHGs have long atmospheric lifetimes (one to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule is dependent on multiple variables and cannot be pinpointed, it is understood that more CO₂ is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. Of the total annual human-caused CO₂ emissions, approximately 55 percent is sequestered through ocean and land uptakes every year, averaged over the last 50 years, whereas the remaining 45 percent of human-caused CO₂ emissions remains stored in the atmosphere (IPCC 2013: 467).

The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; suffice it to say, the quantity is enormous, and no single project alone would measurably contribute to a noticeable incremental change in the global average temperature, or to global, local, or microclimates. From the standpoint of CEQA, GHG impacts to global climate change are inherently cumulative.

Greenhouse Gas Emission Sources

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the transportation, industrial/manufacturing, utility, residential, commercial, and agricultural emissions sectors (California Air Resources Board [ARB] 2014a). In California, the transportation sector is the largest emitter of GHGs, followed by electricity generation (ARB 2014a). Emissions of CO₂ are byproducts of fossil fuel combustion. Methane, a highly potent GHG, primarily results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices and landfills. Nitrous oxide is also largely attributable to agricultural practices and soil management. CO₂ sinks, or reservoirs, include vegetation and the ocean, which absorb CO₂ through sequestration and dissolution (CO₂ dissolving into the water), respectively, two of the most common processes for removing CO₂ from the atmosphere.

EFFECTS OF CLIMATE CHANGE ON THE ENVIRONMENT

The IPCC was established in 1988 by the World Meteorological Organization and the United Nations Environment Programme to provide the world with a scientific view on climate change and its potential effects. According to the IPCC global average temperature is expected to increase relative to the 1986-2005 period by 0.3 to 4.8°C (0.5-8.6°F) by the end of the 21st century (2081-2100), depending on future GHG emission scenarios (IPCC 2014: SPM-8). According to the California Natural Resources Agency (CNRA), temperatures in California are projected to increase 2.7°F above 2000 averages by 2050 and, depending on emission levels, 4.1–8.6°F by 2100 (CNRA 2012: 2).

Physical conditions beyond average temperatures could be indirectly affected by the accumulation of GHG emissions. For example, changes in weather patterns resulting from increases in global average temperature are expected to result in a decreased volume of precipitation falling as snow in California and an overall reduction in snowpack in the Sierra Nevada. Based upon historical data and modeling, the California Department of Water Resources projects that the Sierra snowpack will experience a 25 to 40 percent reduction from its historic average by 2050 (California Department of Water Resources 2008:4). An increase in precipitation falling as rain rather than snow also could lead to increased potential for floods because water that would normally be held in the Sierra Nevada until spring could flow into the Central Valley concurrently with winter storm events (CNRA 2012:5). This scenario would place more pressure on California's levee/flood control system.

Another outcome of global climate change is sea level rise. Sea level rose approximately seven inches during the last century and, assuming that sea-level changes along the California coast continue to track global trends, sea level along the state's coastline in 2050 could be 10-18 inches higher than in 2000, and 31 to 55 inches higher by the end of this century (CNRA 2012: 9).

As the existing climate throughout California changes over time, the ranges of various plant and wildlife species could shift or be reduced, depending on the favored temperature and moisture regimes of each species. In the worst cases, some species would become extinct or be extirpated from the state if suitable conditions are no longer available (CNRA 2012: 11, 12).

Changes in precipitation patterns and increased temperatures are expected to alter the distribution and character of natural vegetation and associated moisture content of plants and soils. An increase in frequency of extreme heat events and drought are also expected. These changes are expected to lead to increased frequency and intensity of large wildfires (CNRA 2012: 11).

Cal-Adapt is a climate change scenario planning tool developed by the California Energy Commission (CEC) and the University of California Berkeley Geospatial Innovation Facility. Cal-Adapt currently downscales global climate model data to local and regional resolution under two emissions scenarios; the A-2 scenario represents a business-as-usual future emissions scenario, and the B-1 scenario represents a lower GHG emissions future. According to Cal-Adapt, annual average temperatures in Placer County are projected to rise by 4.0-6.8°F by 2100, with the range based on low and high emissions scenarios (Cal-Adapt 2016).

4.3.2 Regulatory Setting

GHG emissions and responses to global climate change are regulated by a variety of federal, state, and local laws and policies. Key regulatory and conservation planning issues applicable to the project are discussed below.

FEDERAL

Supreme Court Ruling of Carbon Dioxide as a Pollutant

The U.S. Environmental Protection Agency (EPA) is the federal agency responsible for implementing the federal Clean Air Act (CAA) and its amendments. The Supreme Court of the United States ruled on April 2, 2007 that CO₂ is an air pollutant as defined under the CAA, and that EPA has the authority to regulate emissions of GHGs. The ruling in this case resulted in EPA taking steps to regulate GHG emissions and lent support for state and local agencies' efforts to reduce GHG emissions.

National Program to Cut Greenhouse Gas Emissions and Improve Fuel Economy for Cars and Trucks

On August 28, 2014, EPA and the U.S. Department of Transportation's National Highway Traffic Safety Administration (NHTSA) finalized a new national program that would reduce GHG emissions and improve fuel economy for all new cars and trucks sold in the U.S. (NHTSA 2012). EPA proposed the first-ever national GHG emissions standards under the CAA, and NHTSA proposed Corporate Average Fuel Economy standards under the Energy Policy and Conservation Act. This proposed national program allows automobile manufacturers to build a single light-duty national fleet that satisfies all requirements under both Federal programs and the standards of California and other states. While this program will increase fuel economy to the equivalent of 54.5 miles per gallon for cars and light-duty trucks by Model Year 2025, additional phases are being developed by NHTSA and EPA that address GHG emission standards for new medium- and heavy-duty trucks (NHTSA 2014).

STATE

Executive Order S-3-05

Executive Order S-3-05, signed by Governor Arnold Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra Nevada snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those problems, the Executive Order established total GHG emission targets for the State. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

As described below, legislation was passed in 2006 (Assembly Bill [AB] 32, the California Global Warming Solutions Act of 2006) to limit GHG emissions to 1990 levels by 2020 with continued "reductions in emissions" beyond 2020, but no specific additional reductions were enumerated in the legislation. Further, Senate Bill 375 (sustainable community strategies/transportation) established goals for emissions from light duty truck and automobiles for 2020 and 2035.

A recent California Appellate Court decision, *Cleveland National Forest Foundation v. San Diego Association of Governments* (November 24, 2014) Cal.App.4th, further examined the executive order and whether it should be viewed as having the equivalent force of a legislative mandate for specific emissions reductions. The case has been accepted for review by the California Supreme Court, and therefore is not currently considered a precedent.

Executive Order B-30-15

On April 20, 2015 Governor Edmund G. Brown Jr. signed Executive Order B-30-15 to establish a California GHG reduction target of 40 percent below 1990 levels by 2030 (this executive order was preceded by SB 32). The Governor's executive order aligns California's GHG reduction targets with those of leading international governments such as the 28-nation European Union which adopted the same target in October 2014. California is on track to meet or exceed the current target of reducing GHG emissions to 1990 levels by 2020, as established in the California Global Warming Solutions Act of 2006 (Assembly Bill 32, discussed below). California's new emission reduction target of 40 percent below 1990 levels by 2030 will make it possible to reach the ultimate goal of reducing emissions 80 percent under 1990 levels by 2050. This is in line with the scientifically established levels needed in the U.S. to limit global warming below 2 °C - the warming threshold at which there will likely be major climate disruptions such as super droughts and rising sea levels according to scientific consensus.

Assembly Bill 32, the California Global Warming Solutions Act of 2006

In September 2006, Governor Schwarzenegger signed the California Global Warming Solutions Act of 2006 (AB 32). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. AB 32 also requires that these reductions "...shall remain in effect unless otherwise amended or repealed. (b) It is the intent of the Legislature that the statewide greenhouse gas emissions limit continue in existence and be used to maintain and continue reductions in emissions of greenhouse gases beyond 2020. (c) The (Air Resources Board) shall make recommendations to the Governor and the Legislature on how to continue reductions of greenhouse gas emissions beyond 2020." [California Health and Safety Code, Division 25.5, Part 3, Section 38551]

Assembly Bill 32 Climate Change Scoping Plan and Update

In December 2008, ARB adopted its Climate Change Scoping Plan, which contains the main strategies California will implement to achieve reduction of approximately 118 million metric tons (MMT) of CO₂-equivalent (CO₂e) emissions, or approximately 21.7 percent from the state's projected 2020 emission level of 545 MMT of CO₂e under a business-as-usual scenario (this is a reduction of 47 MMT CO₂e, or almost 10 percent, from 2008 emissions). ARB's original 2020 projection was 596 MMT CO₂e, but this revised 2020 projection takes into account the economic downturn that occurred in 2008 (ARB 2011). The Scoping Plan reapproved by ARB in August 2011 includes the Final Supplement to the Scoping Plan Functional Equivalent Document, which further examined various alternatives to Scoping Plan measures. The Scoping Plan also includes ARB-recommended GHG reductions for each emissions sector of the state's GHG inventory. ARB estimates the largest reductions in GHG emissions to be achieved by 2020 will be by implementing the following measures and standards (ARB 2011):

- ▲ improved emissions standards for light-duty vehicles (estimated reductions of 26.1 MMT CO₂e),
- ▲ the Low-Carbon Fuel Standard (15.0 MMT CO₂e),
- ▲ energy efficiency measures in buildings and appliances (11.9 MMT CO₂e),
- ▲ a renewable portfolio and electricity standards for electricity production (23.4 MMT CO₂e), and
- ▲ the Cap-and-Trade Regulation for certain types of stationary emission sources (e.g., power plants).

In May 2014, ARB released and has since adopted the *First Update to the Climate Change Scoping Plan* to identify the next steps in reaching AB 32 goals and evaluate the progress that has been made between 2000 and 2012 (ARB 2014b: 4 and 5). According to the update, California is on track to meet the near-term 2020 GHG limit and is well positioned to maintain and continue reductions beyond 2020 (ARB 2014b: ES-2). The update also reports the trends in GHG emissions from various emission sectors.

At the time of writing this draft EIR; however, no specific reduction goal beyond 2020 has been recommended or formally adopted by ARB or the California State Legislature. As noted in the discussion of AB 32, above, ARB is tasked with making a recommendation for targets beyond 2020 as part of the legislation. ARB is currently working on a second update to the Scoping Plan to reflect the 2030 target established in Executive Order B-30-15.

Assembly Bill 197

Governor Brown signed AB 197 (Garcia, Chapter 250, Statutes of 2016) on September 8, 2016. AB 197 creates a legislative committee to oversee ARB and requires ARB to take specific actions when adopting plans and regulations pursuant to SB 32 (described below) related to disadvantaged communities, identification of specific information regarding reduction measures, and information regarding existing greenhouse gases at the local level.

California Global Warming Solutions Act of 2006 (Assembly Bill 32 as amended by Senate Bill 32)

Assembly Bill (AB) 32 (2006), the California Global Warming Solutions Act (Health and Safety Code Section 38500 et seq.), was first signed in to law in September 2006. The Act requires the reduction of statewide GHG emissions to 1990 levels by the year 2020. This requires that the State achieve reduction of approximately 118 million metric tons (MMT) of CO₂-equivalent (CO₂e) emissions, or approximately 21.7 percent from the state's projected 2020 emission level of 545 MMT of CO₂e under a business-as-usual scenario (this is a reduction of 47 MMT CO₂e, or almost 10 percent, from 2008 emissions). AB 32 also directs the ARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources and address GHG emissions from vehicles. The ARB has stated that the regulatory requirements for stationary sources will be first applied to electricity power generation and utilities, petrochemical refining, cement manufacturing, and industrial/commercial combustion. The second group of target industries will include oil and gas production/distribution, transportation, landfills and other GHG-intensive industrial processes.

In 2008, the ARB adopted the Scoping Plan for AB 32, the main strategies California will use to reduce the GHGs that cause climate change (many of those by products of energy use). The Scoping Plan has a range of GHG reduction actions which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 program implementation regulation to fund the program. The Scoping Plan recognizes that the SB 375 regional GHG emissions reduction targets is the main action required to obtain the necessary reductions from the land use and transportation sectors in order to achieve the 2020 emissions reduction goals of AB 32.

In 2014, ARB adopted the First Update to the Climate Change Scoping Plan to identify the next steps in reaching AB 32 goals and evaluate the progress that has been made between 2000 and 2012. According to the update, California is on track to meet the near-term 2020 GHG limit and is well positioned to maintain and continue reductions beyond 2020. The update also reports the trends in GHG emissions from various emission sectors.

In September 2016, Governor Brown signed SB 32, which sets new statewide GHG reduction targets to 40 percent below 1990 levels by 2030. An update to the Scoping Plan is currently under preparation to address 2030 GHG reduction targets. California is on track to meet or exceed its legislated target of reducing GHG emissions to 1990 levels by 2020, as established in the California Global Warming Solutions Act of 2006.

Senate Bill 375

Senate Bill (SB) 375, signed by the Governor in September 2008, aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a Sustainable Communities Strategy (SCS) or Alternative Planning Strategy, showing prescribed land use allocation in each MPO's Regional Transportation Plan. ARB, in consultation with the MPOs, is to provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in their respective regions for 2020 and 2035.

The Sacramento Area Council of Governments (SACOG) serves as the MPO for Placer, Sacramento, El Dorado, Yuba, Sutter, and Yolo Counties, excluding area in the Lake Tahoe Basin. The project site is located in the City of Lincoln in Placer County. SACOG adopted its Metropolitan Transportation Plan (MTP)/SCS 2036 in 2016 (SACOG 2016). The plan covers the period from 2012 to 2036 and is an update to the 2012 MTP/SCS, which covered the period from 2012 to 2035. SACOG was tasked by ARB to achieve a 7 percent

reduction in per capita GHGs from passenger cars and light trucks by 2020 and a 16 percent reduction by 2035, relative to emission levels in 2005. Based on the development outlined in the MTP/SCS, the region would achieve both reduction targets by implementing its SCS (SACOG 2016:173). The MTP/SCS forecasted land use development by community types: Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development during the MTP/SCS Planning Period. The project site, is designated as an “Established Community” in the MTP/SCS. The MTP/SCS forecasts 3,280 new units per year through 2036 in Established Communities. This growth assumes that many of the newer subdivisions, including the City of Lincoln, will likely continue to build at a steadier pace than traditional infill in the near term (through 2020) (SACOG 2016: 31

Advanced Clean Cars Program

In January 2012, ARB approved the Advanced Clean Cars program which combines the control of GHG emissions and criteria air pollutants, as well as requirements for greater numbers of zero-emission vehicles, into a single package of standards for vehicle model years 2017 through 2025. By 2025, when the rules will be fully implemented, the statewide fleet of new cars and light trucks will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions than the statewide fleet in 2016 (ARB [no date]).

Senate Bill X1-2, the California Renewable Energy Resources Act of 2011

SB X1-2 of 2011 requires all California utilities to generate 33 percent of their electricity from renewables by 2020. SB X1-2 sets a three-stage compliance period requiring all California utilities, including independently owned utilities, energy service providers, and community choice aggregators, to generate 20 percent of their electricity from renewables by December 31, 2013; 25 percent by December 31, 2016; and 33 percent by December 31, 2020. SB X1-2 also requires the renewable electricity standard to be met increasingly with renewable energy that is supplied to the California grid from sources within, or directly proximate to, California. SB X1-2 mandates that renewables from these sources make up at least 50 percent of the total renewable energy for the 2011-2013 compliance period, at least 65 percent for the 2014-2016 compliance period, and at least 75 percent for 2016 and beyond.

California Building Efficiency Standards of 2013 (Title 24, Part 6)

Buildings in California are required to comply with California’s Energy Efficiency Standards for Residential and Nonresidential Buildings established by the CEC regarding energy conservation standards and found in Title 24, Part 6 of the California Code of Regulations. California’s Energy Efficiency Standards for Residential and Nonresidential Buildings was first adopted in 1978 in response to a legislative mandate to reduce California’s energy consumption. The standards are updated on an approximately three-year cycle to allow consideration and possible incorporation of new energy efficient technologies and methods. All buildings for which an application for a building permit is submitted on or after July 1, 2014 must follow the 2013 standards (CEC 2012). Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The CEC Impact Analysis for California’s 2013 Building Energy Efficiency Standards estimates that the 2013 Standards are 23.3 percent more efficient than the previous 2008 standards for multi-family residential construction and 21.8 percent more efficient for non-residential construction (CEC 2013:3).

CEC adopted the 2016 Building Energy Efficiency Standards in 2015. The 2016 Title 24 standards will go into effect on January 1, 2017. For purposes of single-family residences, the 2016 Title 24 standards will result in about 28 percent less energy use for lighting, heating, cooling, ventilation and water heating than the 2013 Title 24 standards (CEC 2015). Data regarding the comparative efficiencies of the 2016 Title 24 standards relative to the 2013 Title 24 standards are not yet available for all building types (e.g., multi-family residences; commercial buildings).

LOCAL

City of Lincoln General Plan

The *City of Lincoln General Plan* does not specifically include policies or goals to reduce GHG emissions. However, the general plan's Land Use, Public Facilities and Services, Open Space and Conservation, and Health and Safety Elements provides a number of goals and policies aimed at improving energy efficiency, transportation efficiency, and reducing air emissions, which could reduce or sequester GHGs. The following policies are applicable to the project:

- ▲ **Policy LU-11.3:** The City shall require that all outdoor light fixtures, including street lighting, externally illuminated signs, advertising displays, and billboards, use low energy, shielded light fixtures that direct light downward (i.e., lighting shall not emit higher than a horizontal level). Up-lighting of architectural features or landscaping can be allowed in compliance with the California Title 24 Energy Standards (as amended) and based on City design review. Additionally, the City shall continue to improve and maintain proper lighting in park facilities and fields without undue nuisance light and glare spillage on adjoining residential areas. Where public safety would not be compromised, the City shall encourage the use of low intensity lighting for all outdoor light fixtures.
- ▲ **Policy T-4.1:** The City shall promote and support public transit services that meet the need of residents and visitors.
- ▲ **Policy T-4.3:** The City shall promote the use of public transit through development conditions requiring park-and-ride lots, bus turnouts and passenger shelters along major streets adjacent to appropriate land uses.
- ▲ **Policy T-4.7:** Through the use of Golf Transportation Plans, the City shall support the use of electric golf carts within the City, and providing the necessary infrastructure to support them, when feasible.
- ▲ **Policy T-4.8:** Through the implementation of the Neighborhood Electric Vehicle Plan, the City shall support the use of Neighborhood Electrical Vehicles (NEV) and similar vehicles by providing where possible for street classifications that provide for their use and ensure connectivity throughout the City.
- ▲ **Policy PFS-6.3:** The City shall support the use of renewable energy sources, such as solar, in residential, commercial, and industrial developments.
- ▲ **Policy OSC-3.1:** The City shall require the use of energy conservation features in new construction and renovation of existing structures in accordance with state law. New features that may be applied to construction and renovation include; Green building techniques (such as use of recycled, renewable, and reused materials; efficient lighting / power sources; design orientation; building techniques; etc.); and Cool roofs.
- ▲ **Policy OSC-3.2:** The City shall encourage the planting of shade trees along all City streets to reduce radiation heating.
- ▲ **Policy OSC-3.3:** The City shall coordinate with local utility providers to provide public education energy conservation programs.
- ▲ **Policy OSC-3.7:** The City shall encourage the use of passive and active solar devices such as solar collectors, solar cells, and solar heating systems into the design of local buildings.
- ▲ **Policy OSC-3.8:** The City shall encourage work that building and site design take into account the solar orientation of buildings during design and construction.

- ▲ **Policy OSC-3.9:** The City will encourage the planting of shade trees within residential lots to reduce radiation heating and encourage the reduction of greenhouse gases.
- ▲ **Policy OSC-3.10:** The City will require commercial and retail parking lots will have 50% tree shading within 15 years to reduce radiation and encourage the reduction of greenhouse gases.
- ▲ **Policy OSC-3.11:** The City will encourage the development of energy-efficient buildings and communities.
- ▲ **Policy OSC-3.12:** The City will promote voluntary participation in incentive programs to increase the use of solar photovoltaic systems in new and existing residential, commercial, institutional and public buildings.
- ▲ **Policy OSC-3.13:** The City will encourage the incorporation of energy-efficient site design such as proper orientation to benefit from passive solar heating and cooling into master planning efforts when feasible.
- ▲ **Policy OSC-3.14:** The City will include energy planners and energy efficiency specialists in appropriate pre-application discussions with property owners and developers to identify the potential for solar orientation and energy efficient systems, building practices and materials.
- ▲ **Policy OSC-3.15:** The City will explore offering incentives such as density bonus, expedited process, fee reduction/waiver to property owners and developers who exceed California Title 24 energy efficiency standards.
- ▲ **Policy HS- 3.3:** The City shall continue to support the recommendations found in the Placer County Air Quality Attainment Plan for the reduction of air pollutants.
- ▲ **Policy HS- 3.4:** The City shall encourage public and private businesses to implement employee use of rideshare programs, public transportation, NEV's, and/or alternatives to motorized transportation such as bicycling or walking to work.
- ▲ **Policy HS- 3.5:** The City shall require developments, where feasible, to be located, designed, and constructed in a manner that would minimize the production of air pollutants and avoid land use conflicts.
- ▲ **Policy HS- 3.6:** The City shall require consideration of alternatives or amendments that reduce emissions of air pollutant when reviewing project applications.
- ▲ **Policy HS- 3.8:** The City may require an analysis of potential air quality impacts associated with significant new developments through the environmental review process, and identification of appropriate mitigation measures prior to approval of the project development.
- ▲ **Policy HS- 3.10:** Coordinating with the PCAPCD, the City shall require large development projects to mitigate air quality impacts. As feasible, mitigations may include, but are not limited to the following: Providing bicycle access and bicycle parking facilities; Providing preferential parking for high-occupancy vehicles, car pools; or alternative fuels vehicles (including neighborhood electric vehicles or NEVs); and Establishing telecommuting programs or satellite work Centers.
- ▲ **Policy HS- 3.11:** The City shall require the use of natural gas or the installation of low emission, EPA-certified fireplace inserts in all open hearth fireplaces in new homes. The city shall promote the use of natural gas over wood products in space heating devices and fireplaces in all new homes and existing homes considering remodeling plans.
- ▲ **Policy HS- 3.12:** The City shall encourage employment-intensive development with a high floor area ratio where adequate community transit services are planned, and discourage such development where adequate community transit service is not planned.

- ▲ **Policy HS- 3.14:** The City shall provide disincentives for single-occupant vehicle trips through parking supply and pricing controls in areas where supply is limited and alternative transportation modes are available.
- ▲ **Policy HS- 3.17:** The City shall promote street design that provides an environment which encourages neighborhood electric vehicles, transit use, biking and walking.
- ▲ **Policy HS- 3.18:** The City shall encourage all new development to be designed to promote pedestrian and bicycle access and circulation (including the use of NEVs), to the greatest extent feasible.
- ▲ **Policy HS- 3.21:** The City will develop a tree planting informational packet to help future residents understand their options for planting trees that can absorb carbon dioxide.

4.3.3 Environmental Impacts and Mitigation Measures

THRESHOLDS OF SIGNIFICANCE

CEQA Direction

In 2010, Section 15064.4 was added to the CEQA Guidelines to directly address emissions of GHGs. The Guidelines state:

- (a) The determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in section 15064. A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project.
- (b) A lead agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:
 - (1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;
 - (2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project;
 - (3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

Thus, one threshold that may be used to analyze the project's GHG emissions is whether the project would conflict with or obstruct the goals or strategies of the California Global Warming Solutions Act of 2006 (AB 32) or its governing regulation (Sections 38500-38599 of the Health & Safety Code).

The Governor's Office of Planning and Research's (OPR's) Guidance did not require Executive Order S-3-05 to be used as a significance threshold under CEQA. Rather, OPR recognized that, until ARB establishes a statewide standard, selecting an appropriate threshold was within the discretion of the lead agency.

The OPR Guidance did not include a quantitative threshold of significance to use for assessing a project's GHG emissions under CEQA. Moreover, ARB has not established such a threshold or recommended a method for setting a threshold for project-level analysis. In the absence of a consistent statewide threshold, the City in

consultation with the Placer County Air Pollution Control District (PCAPCD), has developed a threshold of significance for analyzing the project's GHG emissions. The issue of setting a GHG threshold is complex and dynamic, especially in light of the California Supreme Court decision in *Center for Biological Diversity v. California Department of Fish and Wildlife* (referred to as the Newhall Ranch decision hereafter). The Supreme Court ruling highlighted the need for the threshold being tailored to the specific project, its location, and the surrounding setting. Therefore, the threshold used to analyze the project is specific to the analysis herein.

Placer County Air Pollution Control District

PCAPCD recently developed recommendations for thresholds of significance for evaluating construction- and operation-related GHG emissions for proposed land use development projects within its jurisdiction. These thresholds were developed in collaboration with the Sacramento Metropolitan Air Quality Management District, the Yolo Solano Air Quality Management District, and the Feather River Air Quality Management District (Green, pers. comm. 2014). PCAPCD recommends the use of a mass emission threshold for evaluating construction emissions. PCAPCD recommends a two-tiered approach for assessing a project's operational emissions. The first tier consists of comparing a project's annual operational emissions to PCAPCD's recommended mass emission threshold. This threshold gives lead agencies the ability to conclude that smaller developments would not necessarily make a considerable contribution to the cumulative impact of climate change.

The second tier consists of evaluating a project's consistency with California's GHG reduction targets. Prior to the Newhall Ranch decision, the second-tier involved comparison of the project emissions to a "no action taken" (NAT) scenario. In the Newhall Ranch decision, the court found that, although comparison of a project to NAT (or "business as usual") may be appropriate in concept, the comparison of a specific local project against a statewide business as usual scenario is not an analogous comparison. The Court stated that the BAU approach would need to be based on a substantial evidence-supported link between data in the Scoping Plan and the project, at its proposed location, to demonstrate consistency of a project's reductions with statewide goals.

Based on current data available it is not possible, within the structure of the Scoping Plan sectors, to develop the evidence to reliably relate a specific land use development project's reductions to the Scoping Plan's statewide goal, as envisioned by the Court. Based on the court's finding, the NAT approach is now considered problematic and is no longer recommended by PCAPCD. Therefore, consistent with direction from the PCAPCD, the DEIR analysis replaces the second tier with a threshold that is consistent with the Newhall Ranch decision. This new second-tier consists of evaluating the consistency of a project's GHG efficiency with California's GHG reduction targets. In light of the Newhall Ranch decision, efficiency metrics were developed in coordination with PCAPCD to assess the project's consistency with California's adopted GHG reduction target for 2020 under AB 32.

PCAPCD's recommended methodology for assessing a project's consistency with GHG targets established in AB 32 is the use of GHG efficiency metrics to assess the GHG efficiency of a project on a "service population (SP)" basis (the sum of the number of jobs and the number of residents supported by a project). This metric represents the GHG efficiency needed to achieve a fair share of the state's emissions mandate embodied in AB 32. The use of "fair share" in this instance refers to the GHG efficiency that, if applied statewide, would meet the AB 32 emissions target and support efforts to reduce emissions beyond 2020. The intent of AB 32 is to accommodate population and economic growth in California, but do so in a way that results in less GHG emissions. With a reduced rate of emissions per service population, California can accommodate expected population growth and achieve economic development objectives, while also abiding by AB 32's emissions target and supporting efforts to reduce statewide GHG levels beyond 2020.

Ascent's climate change specialists developed GHG efficiency metrics for the project based on emissions rates for the land use-driven emission sectors in the ARB GHG inventory. Ascent focused on the sectors that would accommodate projected growth (as indicated by population and employment growth) while allowing for consistency with the goals of AB 32 (i.e., 1990 GHG emissions levels by 2020). The per service population efficiency target is based on the AB 32 GHG reduction target and GHG emissions inventory prepared for the ARB 2008 Scoping Plan. To develop the efficiency metric for 2020, land-use driven sectors

in the ARB 1990 GHG inventory were identified emission sources that would not be applicable to the project area were removed. The land-use sector driven inventory for 1990 was divided by the service population projection for California in 2020. Detailed calculations showing derivation of the efficiency metrics are shown in Appendix C. The efficiency metric allows the threshold to be applied evenly to all project types (residential, commercial/retail and mixed use) and uses an emissions inventory comprised only of emission sources from land-use related sectors. The efficiency approach allows lead agencies to assess whether any given project or plan would accommodate population and employment growth in a way that is consistent with the emissions limit established under AB 32. The resultant GHG efficiency metric applicable to the project would be 4.9 MT CO₂e/SP/year for 2020.

The project is anticipated to be built out and fully operational by 2020. Therefore, the City bases its significance determination for this project on the 2020 target. Analysis of project emissions at buildout is consistent with current CEQA practice and available guidance from air districts on analyzing emissions from the first fully operational year (SMAQMD 2015:6-5). Operational emissions would be highest during the first year and would decline due to fleet turnover and implementation of additional regulations at the State level. Furthermore, if the project's estimated GHG emissions per service population in 2020 are less than these metrics, the impact would be considered less than significant for the AB 32 target year which is the same as the project buildout year.

Based on the discussion above, the following thresholds are applied to this analysis:

- ▲ For the evaluation of construction-related emissions, the PCAPCD-recommended mass emission threshold of 1,100 metric tons of carbon dioxide-equivalent per year (MT CO₂e/year) is used.
- ▲ For the evaluation of operational emissions, a two-tiered approach is used:
 - (Tier I) Operational emissions of a project would not have a significant impact on the environment if they are less than 1,100 MT CO₂e/year, and
 - (Tier II) Projects with operational emissions that exceed 1,100 MT CO₂e/year, but are able to demonstrate consistency with a GHG efficiency metric of 4.9 MT CO₂e/SP/year by 2020, would not conflict with GHG reduction goals embodied in AB 32.

For the evaluation of this project, an impact would be significant if both Tier I and Tier II thresholds are exceeded.

ISSUES OR POTENTIAL IMPACTS NOT DISCUSSED FURTHER

All GHG and climate change issues addressed in the significance criteria are evaluated below. As described further in the cumulative impact analysis, analysis of GHGs associated with the project is inherently a cumulative impact analysis.

METHODS OF ANALYSIS

Short-term construction-generated and long-term operational GHG emissions were calculated using the California Emissions Estimator Model (CalEEMod) Version 2013.2 computer program (SCAQMD 2013). Model assumptions were based on project-specific information (i.e., number and type of units, construction phasing based on site location, start date of construction, area to be graded, area to be paved, and year of operation); and default values in CalEEMod that are based on the project's location and land use types. Construction GHG emissions were estimated using the same assumptions as outlined in Section 4.2, "Air Quality," available in Appendix B.

Long-term operational GHG emissions were estimated for all applicable emissions sectors anticipated for the project. Mobile-source emissions were estimated using the emission factors provided in CalEEMod and

estimates of project-generated vehicle trips that were developed as part of the analysis presented in Chapter 4.10, "Traffic and Transportation." Emissions from natural gas combustion used for space heating, water heating, and fireplaces were estimated based on the consumption levels provided in Chapter 4.9, "Public Utilities, Services, and Water Supply," using GHG emission factors contained in CalEEMod. Emissions from landscape maintenance equipment were estimated using the applicable module in CalEEMod (SCAQMD 2013).

Indirect emissions associated with electricity consumption were calculated based on utility emission factors for Pacific Gas and Electric Company for CO₂, N₂O, and CH₄ as contained in CalEEMod. GHG emissions from water consumption and wastewater treatment were estimated based on the volume of water that would be required by the project, as provided in Chapter 4.14, "Public Utilities," and energy intensity factors for water supply in northern California published by CEC and incorporated into CalEEMod (CEC 2006:2). Indirect GHG emissions associated with the quantity of solid waste generated by the land uses was estimated using the applicable module in CalEEMod and was based on the quantities reported in Chapter 4.14, "Public Utilities."

The loss in sequestered carbon was also estimated in CalEEMod using the vegetation module. The types and amounts of vegetation that would be temporarily removed because of construction were estimated as part of the biological impact analysis presented in Chapter 4.4, "Biological Resources." While vegetation removed as a result of construction activities would be restored, it would still take time for the vegetation to mature and reach pre-project conditions, resulting in the loss of carbon sequestration potential. Thus, total one-time GHG emissions from the loss in carbon sequestration were estimated and then amortized over the operational life of the project (assumed to be 40 years for this analysis) and considered in combination with on-going operational emissions units (Sustainable Building Task Force 2003:10). This approach is consistent with the South Coast Air Quality Management District's (SCAQMD's) recommendations on the use of the vegetation module in CalEEMod (SCAQMD 2013). Accounting for the loss in sequestered carbon in this way allows for the evaluation of whether ongoing operation of the proposed land uses would be efficient enough to "recoup" these one-time emissions.

Emissions were estimated for 2020 to provide a comparison with the State's GHG reduction goals under AB 32. In addition, the project's consistency with SACOG's adopted MTP/SCS which sets GHG reduction targets to 2036 was analyzed.

IMPACT ANALYSIS

Impact 4.3-1: Construction-generated greenhouse gas emissions.

Construction-generated GHG emissions would not exceed PCAPCD's recommended GHG emissions threshold. Therefore, GHG emissions from project-related construction would not be substantial. This impact would be **less than significant**.

Construction-related activities that would generate GHGs include worker commute trips, haul trucks carrying supplies and materials to and from the project site, and off-road construction equipment (e.g., dozers, loaders, excavators). While project phasing may evolve in a variety of ways depending on factors such as market demand for housing as well as changes in the development goals or financial capabilities of property owners, it is anticipated that construction would follow the schedule outlined in Section 3, "Project Description." Construction of the land uses proposed under the project would start as early as 2016 and occur over a four-year period, ending in 2019. Both phases would occur during the same time, with Phase 1 occurring on the easterly portion of the project site and Phase 2 on the westerly portion. Because construction phasing overlaps, this analysis combines activities from both phases and focuses on emissions by year instead, from 2016-2019. All grading and infrastructure is assumed to occur in 2016, with the residential units constructed from 2017-2019. Utilities are expected to be constructed in 2016 and 2017.

Total construction emissions, by year are summarized in Table 4.9-1. Additional details on the modeling assumptions, inputs, and outputs are provided in Appendix C.

Table 4.3-1 Estimated Greenhouse Gas Emissions Associated with Project Construction Activities by Construction Group	
Construction Year	GHG Emissions (MT CO ₂ e/year)
2016	471
2017	622
2018	407
2019	345
PCAPCD Threshold of Significance (MT CO₂e/year)	1,100
Significant Impact?	No

Notes: Notes: MT CO₂e: metric tons of carbon dioxide equivalents; PCAPCD: Placer County Air Pollution Control District
 Source: Modeling conducted by Ascent Environmental, Inc. in 2016

As shown above in Table 4.3-1 construction activities would result in maximum annual emissions of 622 MT CO₂e/year in 2017 and would not exceed PCAPCD’s recommended mass emission threshold of significance for GHG emissions. Therefore, GHG emissions from project-related construction would not be substantial. This impact would be **less than significant**.

Mitigation Measures

No mitigation measures are necessary.

Impact 4.3-2: Operational greenhouse gas emissions.

While GHGs associated with operation of the project would exceed the Tier I mass-emission threshold of 1,100 MT CO₂e/year, operational GHGs would not exceed the GHG efficiency metric threshold developed for the project based on statewide reduction targets for 2020. Further, the project would be consistent with SACOG’s MTP/SCS which sets GHG reduction targets through 2036. This impact would be **less than significant**.

Operation of the project would result in GHG emissions associated with motor vehicle trips to and from the project area, the combustion of natural gas for space and water heating and fireplaces, the consumption of electricity and water, the generation of wastewater and solid waste, and equipment used for landscaping. Although the project would result in the removal of onsite grass, shrubs, and some trees, it would also install landscaping associated with the residences, landscape strips, and parks. The landscaping would include various types of new vegetation, including shrubs and trees. Consistent with the City’s General Plan policies, the project would meet Title 24 Energy Standards (Policies LU-11.3 and OSC-3.15) and would only install natural gas fireplaces in residential units (Policy HS- 3.11).

The project’s operational GHG emissions were estimated assuming full buildout in 2020 in order to provide a comparison with California’s adopted statewide GHG reduction goal for 2020. Table 4.3-2 summarizes all the direct and indirect sources of GHG emissions associated with the project upon full buildout in 2020. These emissions include the application of existing regulations pertaining to vehicle emissions, building standards, and electricity generation.

As shown in Table 4.3-2, operation of the project in 2020 would result in annual emissions of 7,892 MT CO₂e per year, exceeding the PCAPCD-recommended Tier I mass emission GHG threshold. Therefore, this analysis evaluates the GHG efficiency with which buildout of the project would operate compared to the GHG efficiency threshold (MT CO₂e/SP/year) in 2020 (Tier II).

Table 4.3-2 Summary of Annual Greenhouse Gas Emissions Associated with the Project at Full Buildout in 2020

Emissions Activity	MT CO ₂ e/year
	2020
Mobile Sources ^a	4,626
Electricity ^b	947
Natural Gas (excluding fireplaces)	1,031
Fireplaces ^c	638
Landscaping Equipment	8
Water Consumption and Wastewater Treatment	124
Solid Waste Generation	515
Vegetation Removal ^d	3
Total Annual Emissions	7,892
PCAPCD Threshold of Significance (MTCO ₂ e/year)	1,100
Project Population ^e	1,629
Project GHG Efficiency (MT CO₂e/SP/year)	4.8
GHG Efficiency Target (MT CO ₂ e/SP/year)	4.9
Exceeds Threshold?	No

Notes: See Appendix C for detail on model inputs, assumptions, and project specific modeling parameters.

MT CO₂e/year = metric tons of carbon dioxide equivalents per year; SP = service population

^a Mobile source emissions reflect the emissions benefits of ARB's recent rulemakings, including on-road diesel fleet rules, Advanced Clean Car Standards, and the Smartway/Phase I Heavy Duty Vehicle Greenhouse Gas Regulation. The reductions associated with these regulations are included in EMFAC 2014 (ARB 2014c:6).

^b Indirect GHG emissions associated with electricity consumption were estimated based on compliance with the 33 percent Renewables Portfolio Standard (RPS).

^c The project does not include wood-burning stoves or fireplaces. Fire places in all units would be powered with natural gas.

^d Loss in carbon sequestration is annualized over an estimated 40-year life of the project consistent with CalEEMod guidance.

^e Assumes 54 multi-family residential units will be built in the mixed-use area, in addition to 575 single-family residential units, for a total of 629 residential units. This total is multiplied by the average household size of 2.59, identified in Chapter 4.8, "Population, Employment, and Housing".

Source: Modeling performed by Ascent Environmental in 2016; ARB 2014c

Trip generation and associated mobile source emissions were estimated using the most conservative mix of land uses, as outlined in Chapters 4.2 "Air Quality" and 4.10 "Transportation and Circulation." This analysis assumes 54 multi-family residential units will be built in the mixed-use area and 575 single-family residential units elsewhere. Taking into account an average household size of 2.59, the project would provide housing for an estimated 1,629 individuals (based on a total 629 units), but no land uses that harbor employment. Therefore, GHG emissions per service population for the project would be 4.8 MT CO₂e/SP/year in 2020, which would be lower than the target efficiency of 4.9 MT CO₂e/SP/year. Thus, the project would be consistent with the GHG efficiency metric threshold. The project would be fully operational by 2020 and would meet the State's 2020 GHG reduction targets under AB 32. Additionally, certain regulations that are relevant to the land use development and that are being implemented as part of the AB 32 Scoping Plan will continue to be phased in after 2020 (e.g., Advanced Clean Cars, Renewables Portfolio Standard [RPS], SB 375) and result in additional GHG reductions. Therefore, project emissions are expected to decline in the future as additional regulations are implemented at the State level.

Another consideration in addressing the project's GHG emissions is whether the SACOG MTP/SCS, which addresses GHG emissions goals for automobiles and light duty trucks for 2020 and 2036 in the Sacramento Metropolitan Region, would address the project's emissions (SACOG 2016). As previously described, SACOG was tasked by ARB to achieve a seven percent reduction in per capita GHGs from passenger cars and light trucks by 2020 and a 16 percent reduction by 2035, relative to emission levels in 2005. Based on the development outlined in the MTP/SCS, the region would achieve both reduction targets by implementing its SCS (SACOG 2016:173). This target cannot be directly translated to an overall threshold, given it is geared toward GHG emissions from transportation only. However, mobile source emissions from passenger vehicles

represent a large proportion of GHG emissions associated with land use development projects, especially residential development, resulting from vehicle trips to and from the development. This is evidenced in the project's GHG emissions shown in Table 4.3-2. The project is included in the SCS planning period (through 2036) and the rest of the project site is consistent with the "Established Community" designation in the SCS (SACOG 2016: 28). While the MTP/SCS acknowledges it cannot predict land use on a parcel-by-parcel basis throughout the SACOG region, SACOG does account for some growth in areas designated as "Established Communities" through 2036. This growth assumes that many of the newer subdivisions, including the City of Lincoln, will likely continue to build at a steadier pace than traditional infill in the near term (through 2020) (SACOG 2016: 31). If development follows the trends and predictions for growth in the SCS for the SACOG region over the next 20 years, development at the project site would be consistent with SCS assumptions.

SACOG states that for the purposes of determining SCS consistency, the policies of the MTP/SCS are embedded in the metrics and growth forecast assumptions of the MTP/SCS. Projects consistent with the growth forecast assumptions of the MTP/SCS, are consistent with the MTP/SCS and its policies (SACOG 2016). As reported in Section 4.3.4, the MTP/SCS forecasts 3,280 new units per year through 2036 in Established Communities (SACOG 2016: 31). The 629 units of the project are, therefore, within the growth anticipated in the MTP/SCS and development from the project when added to other entitled projects is not expected to exceed the MTP/SCS buildout assumptions for the area within this Community Type. The project would be located in an Established Community and is in line with the MTP/SCS which addresses GHG emissions goals for automobiles and light duty trucks for 2020 and 2036. Nonetheless, because the project proposes a General Plan Amendment, the entirety of the project's GHG emissions were analyzed with respect to an efficiency metric based on the State's 2020 GHG reduction goal. As described above, the project's GHG emissions per service population would be below the derived efficiency metric for 2020. As such, the project will be consistent with the 2020 GHG reduction target that applies through the construction of the project, and as more GHG reductions result from further regulations that will reduce project emissions from mobile sources and electricity sources the project's emissions will continue to decrease over time, and because the project is consistent with the SCS forecast through 2036, it will also be consistent with further 2030 GHG reduction target goals that are in development. The project would not result in operational GHG emissions that exceed PCAPCD's recommended efficiency threshold for 2020. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation measures are necessary.

Impact 4.3-3: Impacts of climate change on the project.

Climate change is projected to result in a variety of effects that would influence conditions in the project area including increased temperatures, leading to increased wildfire risk; and changes to timing and intensity of precipitation, resulting in increased stormwater runoff and flood risk. However, there are numerous programs and policies in place to protect against and respond to wildfire. This impact would be **less than significant**.

As discussed previously in this chapter, there is substantial evidence that human-induced increases in GHG concentrations in the atmosphere have led to increased global average temperatures (climate change) through the intensification of the greenhouse effect, and associated changes in local, regional, and global average climatic conditions.

Although there is a strong scientific consensus that global climate change is occurring and is influenced by human activity, there is less certainty as to the timing, severity, and potential consequences of the climate phenomena, particularly at specific locations. Scientists have identified several ways in which global climate change could alter the physical environment in California (CNRA 2012, California Department of Water Resources 2006, IPCC 2014). These include:

- ▲ increased average temperatures;
- ▲ modifications to the timing, amount, and form (rain vs. snow) of precipitation;

- ▲ changes in the timing and amount of runoff;
- ▲ reduced water supply;
- ▲ deterioration of water quality; and
- ▲ elevated sea level.

Many of these changes may translate into a variety of issues and concerns that may affect the project area, including but not limited to:

- ▲ increased frequency and intensity of wildfire as a result of changing precipitation patterns and temperatures; and
- ▲ increased stormwater runoff associated with changes to precipitation patterns and snowmelt patterns.

Although the precise severity of these effects is uncertain, there is consensus regarding the range, frequency, or intensity of these effects that can be expected. The project could be subject to potential hazards that could be exacerbated by climate change, such as changes in the timing and amount of runoff and the increased risk of flooding associated with changes to precipitation. Although the project site is mostly surrounded by developed land, the project is located in a moderate fire hazard safety zone as identified by the California Department of Forestry and Fire Protection (2007).

With regards to increased average temperatures, the City of Lincoln, including the project area, could experience an increase in 4.0 to 6.8° F over annual average temperatures (Cal-Adapt 2016). The City of Lincoln General Plan also specifies policies to maintain buffer zones for fire protection; requires the City to provide water supply, storage and adequately-sized pipelines to provide fire flows at any point within the City, and other policies to minimize fire hazards and risks. See Chapter 4.9, “Public Utilities, Services, and Water Supply,” for additional information on plans and policies related to wildfire. Implementation of these policies would reduce the likelihood of wildfire through management of fuels and implementation of best practices, and would ensure that resources to respond to occurrence of wildland fire would be available. In addition, the project would not include wood-burning stoves or fireplaces in the proposed residences. Therefore, the project would be resilient to potential increases in wildfire risk that might result from climate change.

Sea level rise is expected to increase 31 to 55 inches by the year 2100 (CNRA 2012). However, the project and the rest of the City would not be located where inundation from sea level rise would occur according to inundation maps developed by Cal-Adapt (Cal-Adapt 2016).

With regards to flood risk associated with increased stormwater runoff and changes to precipitation patterns and snowmelt patterns, the project site is within the 100-year flood hazard area along the Markham Ravine and the lower tributary. To accommodate the increase in impervious surfaces, the project would involve construction of a drainage conveyance system with three detention basins. This would reduce potential localized flooding impacts related to changes in precipitation associated with climate change. (See Chapter 4.6, “Hydrology and Water Quality.”)

As discussed above, inclusion of the features in the design and operation of the project and project area would reduce the extent and severity of climate change-related impacts to the land uses and facilities by providing methods for adapting to these changes (e.g., manage wildfire, reduced flood risk). These design features would reduce the extent and severity of climate change-related impacts to the project from increased risk of wildfire and flooding. For these reasons, this impact would be **less than significant**.

Mitigation Measures

No mitigation measures are necessary.

4.4 BIOLOGICAL RESOURCES

This section addresses biological resources known or with potential to occur in the project vicinity, and describes potential effects of project implementation on those resources. Biological resources include common vegetation and habitat types, sensitive plant communities, and special-status plant and animal species. The analysis includes a description of the existing environmental conditions, the methods used for assessment, the potential direct and indirect impacts of project implementation, and mitigation measures recommended to address impacts determined to be significant or potentially significant.

4.4.1 Environmental Setting

The information presented in this analysis is primarily based on the following sources:

- ▲ California Department of Fish and Game (CDFG) Natural Communities List (CDFG 2010);
- ▲ Records search and GIS query of the California Natural Diversity Data Base (CNDDDB) within 5 miles of the project site. CNDDDB is a statewide inventory of the locations and conditions of the state's rarest plant and animal taxa and vegetation types (California Department of Fish and Wildlife [CDFW] 2015);
- ▲ California Native Plant Society (CNPS) online Inventory of Rare and Endangered Plants. The CNPS is an inventory of the locations, life history, and range of rare plant taxa (CNPS 2015);
- ▲ List of federally endangered, threatened, or candidate species that may be affected by projects in the Lincoln, US Geological Survey 7.5 minute quadrangle (USFWS 2015);
- ▲ PISCES database, which is an online database administered by University of California, Davis that describes the best-known ranges for California's native fish and numerous non-native fish (Santos et al. 2014);
- ▲ *Biological Resources Assessment, Independence at Lincoln Residential Development Project, Lincoln, Placer County, California* (WRA, Inc. 2015a); and
- ▲ Delineation of Waters of the United States and CDFW Section 1602 Riparian Areas. Independence at Lincoln Residential Development Project, Lincoln, Placer County, California (WRA, Inc. 2015b).

PROJECT DESCRIPTION AND LOCATION

The project is proposed on approximately 159 acres of undeveloped land located within the City of Lincoln in Placer County. The project site is generally bounded on the north, south, and east by development or disturbed land, such as single-family residential neighborhoods, rural residences, and Santa Clara Memorial Park Cemetery. Some open space is located along an unnamed tributary to Markham Ravine and a 35-acre mitigation site (U.S. Army Corp of Engineers [USACE] Permit No. 9000104 and the Laehr Project) to the south of the project site. Neilson Lane, rural residential properties, and agricultural land are located to the west. Generally, the surrounding area has been subject to intensive land uses in the past, which has reduced habitat quality for many sensitive natural resources.

The project would implement a master-planned residential community that includes 13.6 acres of active parks and 45.6 acres designated as open space for preservation of sensitive natural resources. Markham Ravine and an unnamed tributary would be preserved as a part of this continuous open space corridor. The open space corridor would include multi-use trails, benches, interpretive signage, and water quality basins. At the northeast corner of the community, a multi-use drainage basin area is proposed to detain and filter storm water run-off. Two more drainage basins would be built within Lot I, adjacent to the tributary on the east side of the project site. The main community entry drive would be a new roadway connection

constructed on Nicolaus Road about 800 feet from Waverly Drive. This roadway would continue southward through the open space corridor with proposed construction of a spanning bridge crossing Markham Ravine (see Exhibit 3-6a). The proposed bridge would be located within an existing utility crossing. Existing abutments associated with the utility crossing would be undisturbed by the project and bridge footings and all construction material would be placed outside of the ordinary high water mark (OHWM) and outside of top of bank of Markham's Ravine, spanning the bed and bank of the creek (Wood Rogers 2016, Lynch, pers. comm., 2016; Wood Rogers 2016, Gurney, pers. comm., 2016). As shown in Exhibit 4.4-1 shows location of top of bank at the site of the proposed crossing.

Upgrades to an existing dirt culvert creek crossing located in the southern portion of the project site would to span an unnamed tributary of Markham Ravine (see Exhibit 3-6b). The crossing would be upgraded with the installation of new culverts, a bridge soffit on the top, and new concrete abutments located outside of the OHWM and outside of CDFW Section 1602 jurisdictional areas. As shown in Exhibit 4.4-2, the crossing location is completely culverted; therefore, the functional top of bank is the culvert pipe itself (Wood Rogers 2016, Gurney, pers. comm., 2016). Utility lines that require creek crossing would be installed within the constructed northern and southern crossings or using the jack and bore method within the construction disturbance area. Bridge construction and creek crossing upgrade are the only construction activities that would occur within the creek corridor on the project site.

OVERVIEW OF PHYSICAL CONDITIONS

The majority of the project site has been significantly altered by the construction and operation and subsequent decommissioning of the City's former wastewater treatment facility. Most of the site was previous excavated to provide containment basins for water treatment. The site is surrounded by residential and agricultural use resulting in substantial disturbance and alteration of natural habitats within the site and the surrounding areas. The major natural resources found within the project site are Markham's Ravine and its tributary; the tributary runs from the eastern end of the site to the northwestern edge where it joins Markham's Ravine. This stream corridor is associated with riparian woodlands, freshwater marshes, seasonal wetlands, and black willow thickets that support a variety of wildlife species. As mitigation for a previous project within the City of Lincoln, some of the seasonal wetlands, riparian woodlands, and excavated ponds were created along the stream corridor in the eastern portion of the project site (Entrix 1991). The rest of the project site is mainly disturbed, non-native grasslands.

The topography in the project site is mostly flat. The only the slopes are created by the flood control berms flanking the stream corridor. Elevations range from approximately 105 feet to 135 feet above mean sea level. Deep, well-drained clay pan soils underlie the old wastewater treatment plant and the majority of the site. Soils within the open space corridor are relatively undisturbed except those areas that were altered for excavated basin/mitigation pond construction near the eastern edge of the site. Poorly-drained recent alluvium soils cover most of the land associated within the stream corridor.

VEGETATION COMMUNITIES

The following descriptions of vegetation communities within the project site are taken from the WRA references listed above and supplemented by additional information collected during a site visit by an Ascent Environmental biologist on November 2, 2015. Exhibit 4.4-3 illustrates these land cover types on the project site and Table 4.4-1 provides the acreage of the land cover types on the project site. Each land cover type is described below.

Black Willow Thicket

A thicket of black willow (*Salix gooddingii*) occupies approximately 0.5 acre in the north-central corner of the project site, just west of Waverly Drive. The thicket is growing outside of the levees that border the unnamed tributary of Markham's Ravine. Co-dominated by black willow and Fremont cottonwood, this land cover type has an understory of non-native grasses and forbs. WRA (WRA, Inc. 2015a) noted that the presence of the thicket is fairly recent (starting from the early 2000s) and is growing on previously disturbed ground.



Source: Wood Rodgers 2016

Exhibit 4.4-1

Top of Bank at Location of Proposed Street 18 Bridge Crossing



Source: Wood Rodgers 2016

Exhibit 4.4-2

Location of Proposed Street 7 Crossing



X15010048 01 027

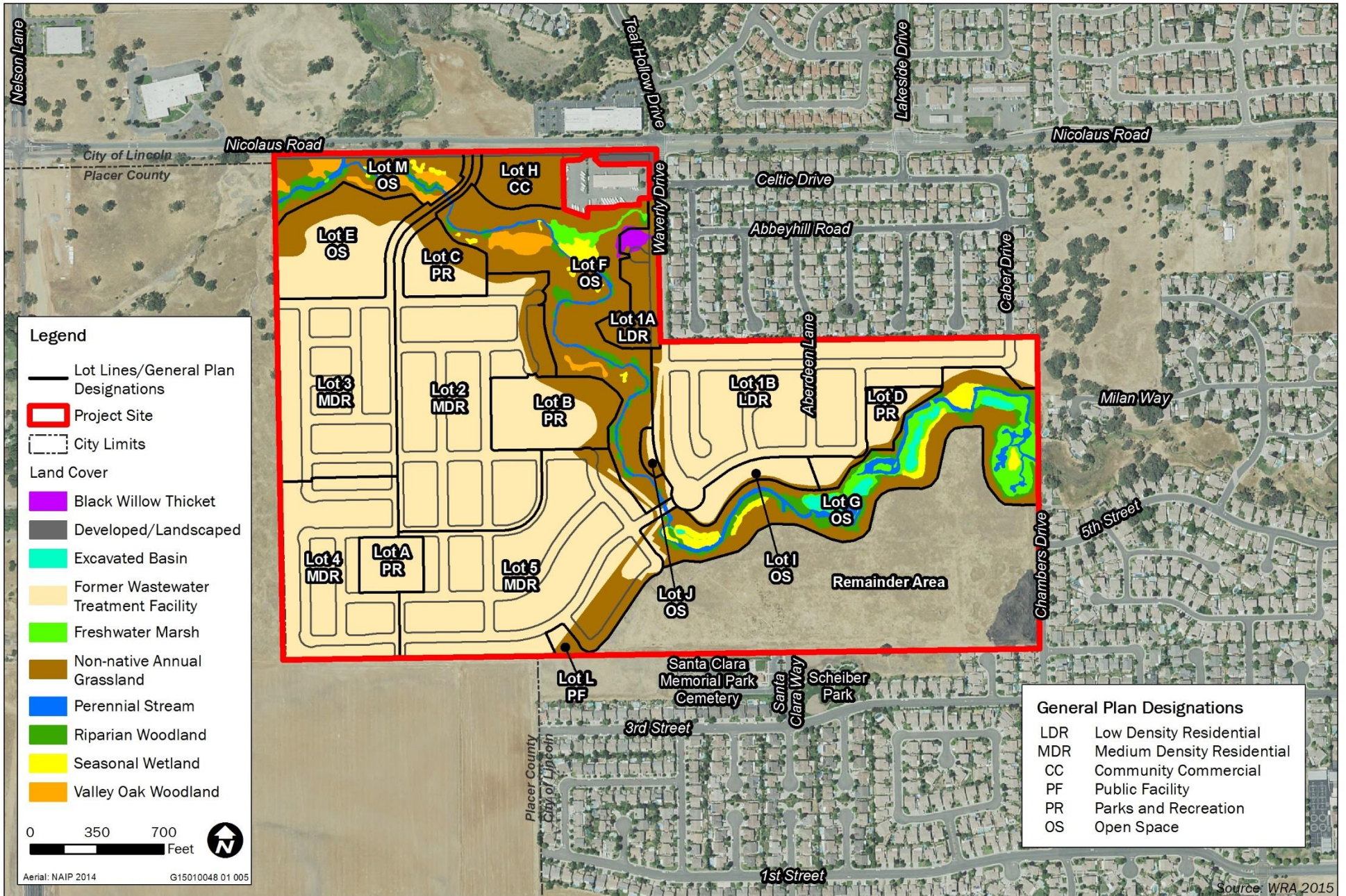


Exhibit 4.4-3

Land Cover on the Project Site



WRA (WRA, Inc. 2015a) also reported that the black willow thicket is “of relatively poor quality, occurs in a previously disturbed area, lacks surface hydrology, lacks commonly associated herbaceous understory species, and does not meet qualitative criteria described by CDFW to be considered a high-quality occurrence of the vegetation.” Because of these qualities, this willow thicket would not be considered a sensitive vegetation community considered for evaluation under CEQA.

Table 4.4-1 Land Cover Types on the Project Site

Land Cover Type	Total Acres	Affected Acres			Percentage Affected
		Development ¹	Open Space ²	Total	
Non-Sensitive					
Black Willow Thicket	0.46	0.36	0.09	0.45	98%
Developed/Landscaped	1.71	1.14	0.56	1.70	99%
Non-native Annual Grassland	38.40	15.13	8.95	24.08	63%
Wastewater Treatment Facility	103.05	95.62	7.28	102.90	99%
Sensitive³					
Excavated Basins/Mitigation Ponds	1.00	0.00	0.00	0.00	0%
Freshwater Marsh	3.75	0.00	0.00	0.00	0%
Riparian Oak Woodland	4.72	0.00	0.00	0.00	0%
Perennial Stream	2.29	0.00	0.00	0.00	0%
Valley Oak Woodland	1.97	0.02	0.16	0.18	9%
Seasonal Wetland	1.90	0.00	0.00	0.00	0%
Sensitive Land Cover Types Total	15.63	0.02	0.16	0.18	1%

¹Development is defined as Low Density Residential, Medium Density Residential, Community Commercial, Parks and Recreation, and Public Facility.

²Open Space impacts include multiple use trails, bridge, roads, and utilities.

³Sensitive land cover types are protected by Section 404 of the Clean Water Act (CWA), Section 1602 of the California Fish and Game Code (FGC), or are considered rare on the CDFG Natural Communities list (CDFG 2010).

Sources: WRA, Inc. 2015a, WRA, Inc. 2015b, Wood Rogers 2016

Developed/Landscaped

Developed and landscaped areas cover about 1.7 acres of the project site and consist of paved and landscaped areas. Vegetation in this land cover is sparse and generally dominated by ornamental plants such as coast redwood (*Sequoia sempervirens*), rosemary (*Rosmarinus officianalis*), and shiny xylosma (*Xylosma congestum*). Habitat value is generally limited to common species associated with developed areas, such as California ground squirrel (*Spermophilus beecheyi*), house finch (*Carpodacus mexicanus*), and mourning dove (*Zenaida macroura*).

Non-Native Annual Grassland

Dominated by non-native annual grass species, this land cover type occupies approximately 38 acres of the project site. Species composition within the project site is dominated by slender oak (*Avena barbata*), medusa head (*Elymus caput-medusae*), and/or brome species (*Bromus diandrus*, *B. hordeaceus*). Trees and shrubs are scattered throughout the grassland. Non-native annual grasslands provide both foraging and shelter habitat for a wide variety of wildlife species including deer mice (*Peromyscus maniculatus*), California vole (*Microtus californicus*), California ground squirrel, black-tail hare (*Lepus californicus*), coyote (*Canis latrans*), striped skunk (*Mephitis mephitis*), western meadowlark (*Sturnella neglecta*), red-tailed hawk (*Buteo jamaicensis*), Swainson hawk (*Buteo swainsoni*), American kestrel (*Falco sparverius*), Pacific gopher snake (*Pituophis catenifer catenifer*), California kingsnake (*Lampropeltis getulua californiae*), and western fence lizard (*Sceloporus occidentalis*).

Wastewater Treatment Facility

The project site contains 103 acres of the City's decommissioned wastewater treatment facility. The facility consists of wastewater treatment and reclamation basins and associated wastewater conveyance structures; it occupies the western and northeastern portion of the project site. Inactive since 2004, the wastewater treatment facility is currently being decommissioned and demolished. The decommissioning process includes berm deconstruction, soil removal, grading and demolition of facilities. Both native and non-native soil types underlie this land cover and contain mainly gravel and cobbles.

Vegetative cover is sparse within this community and is generally dominated by stinkwort (*Dittrichia graveolens*), a non-native noxious weed rated by the California-Invasive Plant Council (California Invasive Plant Council 2015) as having "moderate" potential to cause negative ecological impacts. Other species observed within this community include yellow star thistle (*Centaurea solstitialis*, Cal- IPC "high"), and Fitch's tarweed (*Centromadia fitchii* [*Hemizonia* f.]). Due to decommissioning and its associated disturbance, the habitat value of the area is low.

Excavated Basins/Mitigation Ponds

About one acre of excavated basins lies in or adjacent to the stream corridor on the southeastern section of the project site. These basins were originally excavated around 1991 as mitigation ponds/marsh for a previous development in the project area (Entrix 1991). The 1991 mitigation plan maps these features as "Constructed Freshwater Ponds/Marsh" (USACE Permit No. 9000104 and the Laehr Project). Less than five percent of the basins contain vegetation. The minimal vegetation within the basins is composed of perennial hydrophytes including cattails and bulrushes. When inundated, these seasonal wetlands, intermittent drainages, and drainage swales provide habitat for ducks, egrets, waterfowl, aquatic invertebrates and amphibians. WRA (WRA, Inc. 2015b) notes that the features of these basins include a defined bed and bank. Because they have a defined bed and bank, contain perennial water, and are considered part of the perennial stream, they are likely to qualify as jurisdictional features under Section 404 of the CWA and Section 1602 of the FGC.

Freshwater Marsh

Approximately 3.8 acres of freshwater marsh is located in the south-eastern portion and the north-eastern corner (by Waverly Drive) of the project site. This land cover type appears on slightly concave features along the perennial flow of the stream channels and is either located within the stream channel, on the edge of the excavated stormwater basins, or below the OHWM. Generally dominated by cattails (*Typha latifolia* and *T. angustifolia*), tule (*Schoenoplectus acutus* var. *occidentalis*), and California bulrush (*Schoenoplectus californicus*); other species present in these marshes include pennyroyal (*Mentha pulegium*), fringed willowherb (*Epilobium ciliatum*), and curly dock (*Rumex crispus*). Freshwater marshes provide important breeding and foraging habitat for a wide variety of local wildlife such as herons and egrets, muskrats (*Ondatra zibethicus*), raccoon (*Procyon lotor*), red-winged blackbirds (*Agelaius phoeniceus*), and a wide variety of waterfowl. According to WRA (WRA, Inc. 2015b), the "areas mapped as freshwater marsh contain a prevalence or dominance of hydrophytic vegetation, hydric soils, and wetland hydrology sufficient to meet the requirements as jurisdictional features under Section 404 of the Clean Water Act. Additionally, due to their position adjacent to or in line with the perennial stream, all freshwater marsh within the [project site] is considered jurisdictional under Section 1602 of the FGC."

Riparian Woodland

Riparian woodland occurs intermittently in a 15 to 30-foot wide corridor along the Markham Ravine and its tributary; supporting hydrology and suitable soils are confined to the banks of these perennial drainages. The 4.7 acres of riparian woodland on the project site lies completely within the Open Space corridor and its overstory is dominated by valley oak (*Quercus lobata*) and interior live oak (*Quercus wizlizeni*), with an occasional Fremont cottonwood (*Populus fremontii*). Non-native tree species are also present. The understory contains plants that are tolerant of high water tables such as sandbar willow (*Salix exigua*) and an occasional black willow. Some of the riparian woodland along the unnamed tributary in the southeastern section of the project site was planted as part of the Laehr Project mitigation (USACE Permit No. 9000104

and the Laehr Project). Section 1602 of the FGC considers riparian forests on the bank of creeks and streams to be sensitive communities because of their value to fish and wildlife resources. Riparian woodland provides valuable habitat for nesting and cover for a variety of local wildlife species including black phoebe (*Sayornis nigricans*), western wood-pewee (*Contopus sordidulus*), California towhee (*Pipilo crissalis*), white-tailed kite (*Elanus leucurus*), song sparrow (*Melospiza melodia*), opossum (*Didelphis virginianus*), raccoon, deer (*Odocoileus hemionus*), deer mouse, broad-footed mole (*Scapanus latimanus*), striped skunk, and gray fox (*Urocyon cinereoargenteus*).

Perennial Stream

Perennial stream occupies about 2.3 acres of the project site, is bordered by 20-foot tall levees on both sides throughout most of the project site, and is entirely within the open space corridor. Two perennial streams flow through the property: Markham's Ravine and an unnamed tributary. The unnamed tributary flows from southeast to northwest, and joins Markham's Ravine in the northwest portion of the project site. The streams normally flow about 9 to 12 months of the year, allowing for saturation of soils even during the dry months of summer. Rock and cobble, mixed with sands and silt, compose the bed of the channel. Riparian woodland, as described above, is located intermittently on the banks. Shrubby and herbaceous vegetation located on the banks include Himalayan blackberry (*Rubus armeniacus*), iris-leaf rush (*Juncus xiphioides*), and Baltic rush (*Juncus balticus* ssp. *ater*). Herbaceous vegetation observed below OHWM in the saturated creek bed includes tall flatsedge (*Cyperus eragrostis*), water smartweed (*Persicaria amphibia* [*Polygonum amphibia*]), and floating primrose willow (*Ludwigia peploides* ssp. *peploides*).

Valley Oak Woodland

The project site contains approximately 2.0 acres of valley oak woodland entirely within the open space corridor in the northwestern section of the project site. Valley oak woodland is associated with clay-rich soils and generally tolerates saturation during the wet season and early summer. On the project site, the overstory contains valley oak, interior live oak, and blue oak (*Quercus douglasii*), while the understory is dominated by non-native annual grasses, tree saplings, and poison oak (*Toxicodendron diversilobum*). Oak woodland provides important foraging and breeding habitat for many of the same species as listed under riparian woodlands including oak titmouse (*Baeolophus inornatus*) and acorn woodpeckers (*Melanerpes formicivorus*). This community is considered rare by CDFW (CDFG 2010) and is, therefore, required to be evaluated as a sensitive community under CEQA (CCR Title 14, Div. 6, Chap.3).

Seasonal Wetland

Seasonal wetland is associated with slightly concave features along the perennial flow of the stream channels and on mild slopes with a concave relief; they are either located within the stream channel or adjacent. Approximately 2.0 acres of seasonal wetland is located mainly in the south-eastern portion and the north-eastern corner (by Waverly Drive) of the project site. These wetland features appear to form a perched water table and are saturated through direct precipitation and under- and over-land sheet flow. Herbaceous, hydrophytic species dominate this land cover type and include species such as iris-leaf rush, pennyroyal, and roughfruit popcornflower (*Plagiobothrys trachycarpus*). When inundated, these seasonal wetlands, intermittent drainages, and drainage swales provide habitat for aquatic invertebrates and amphibians. For most of the remainder of the year, wildlife use is similar to that of typical Central Valley non-native annual grassland habitat. Areas mapped as seasonal wetland contain a prevalence or dominance of hydrophytic vegetation, hydric soils, and wetland hydrology sufficient to meet the requirements as jurisdictional features under Section 404 of the Clean Water Act. Additionally, due to their position adjacent to or in-line with the perennial stream, all seasonal wetlands within the project site are considered jurisdictional under Section 1602 of the FGC.

SENSITIVE BIOLOGICAL RESOURCES

Special-Status Species

Special-status species are plants and animals in the following categories:

- ▲ Listed, proposed, or candidates for listing as threatened or endangered under federal Endangered Species Act (ESA) or candidates for possible future listing;
- ▲ Listed, proposed, or candidates for listing by the State of California as threatened or endangered under the California Endangered Species Act (CESA);
- ▲ Listed as Fully Protected in FGC;
- ▲ Animals identified by CDFW as species of special concern;
- ▲ Plants considered by CDFW to be “rare, threatened, or endangered in California” (California Rare Plant Ranks of 1A, presumed extinct in California; 1B, considered rare or endangered in California and elsewhere; and 2, considered rare or endangered in California but more common elsewhere). Note, that while these ranking do not afford the same type of legal protection as ESA or CESA, the uniqueness of these species requires special consideration under CEQA;
- ▲ Considered a locally significant species, that is, a species that is not rare from a statewide perspective but is rare or uncommon in a local context such as within a county or region (CEQA Section 15125 (c)) or is so designated in local or regional plans, policies, or ordinances (CEQA Guidelines, Appendix G); or
- ▲ Otherwise meets the definition of rare or endangered under CEQA Section 15380(b) and (d).

Special-Status Plants

Nine special-status plant species have potential to occur on or near the project site. Table 4.4-2 summarizes the regulatory status, habitat, and flowering period, and potential for occurrence on the project site of each special-status plant species evaluated during this analysis. None of the special-status plants are known to occur within the project site. Two of the nine species identified in the data review have a moderate potential to exist on the project site: Boggs Lake hedge hyssop and Brazilian watermeal. The remaining seven species are not expected to occur or have a low potential to occur on the project site for the following reasons:

- ▲ Site contains marginal habitat quality or is substantially distant from known occurrences.
- ▲ None of the species’ life history requirements are provided by habitat on the project site and/or the project site is outside of the known distribution for the species. Any occurrence would be very unlikely.

Special-Status Animals

The preliminary data review identified 37 special-status wildlife species that have potential to occur on or near the project site. Of the 37 species, 10 have a moderate or high likelihood of occurrence: hardhead minnow, western pond turtle, tricolored blackbird, grasshopper sparrow, burrowing owl, Swainson’s hawk, northern harrier, white-tailed kite, loggerhead shrike, song sparrow (Modesto population). Only two special-status species have been previously documented within the project site: Swainson’s hawk and white-tailed kite. The remaining 27 species are not expected to occur or have a low potential to occur on or near the project site. This determination was based on the types, extent, and quality of habitats on the project site determined during the reconnaissance level field surveys; the proximity of the project site to known occurrences of the species; and the regional distribution and abundance of the species. Table 4.4-3 summarizes the potential for occurrence of each special-status animal species that was evaluated during this analysis.

Table 4.4-2 Special-Status Plant Species Evaluated for the Independence at Lincoln Project

Common Name and <i>Scientific Name</i>	Regulatory Status ¹		Habitat and Flowering Period	Potential to Occur on the Project Site ²
	Federal	State		
<i>Balsamorhiza macrolepis</i> Big-scale balsamroot	-	CRPR 1B.2	Suitable habitat can be found in valley and foothill grassland, and cismontane woodland; sometimes on serpentine substrate. This species is closely associated with foothill grasslands underlain by xeric, well-drained, rocky soils typically derived from volcanics or serpentine, infrequently sandstone. Elevation: 300 - 5,100 feet. Blooms: March - June.	None. Suitable soil types for this species are not present on the project site (WRA, Inc. 2015a)
<i>Chloropyron molle</i> ssp. <i>hispidum</i> Hispid's bird's-beak	-	CRPR 1B.1	Requires alkaline habitat in meadows, playas, and valley and foothill grasslands. Often associated with salt grass (<i>Distichlis spicata</i>). Elevation: 1 - 505 feet. Blooms: June - September	None. There are no suitable alkaline wetlands present on the project site.
<i>Downingia pusilla</i> Dwarf downingia	-	CRPR 2B.2	Dwarf downingia is an annual herb that grows along the margins of several types of vernal pools as well as mesic sites within valley and foothill grasslands. Occurrences are associated mainly with northern claypan vernal pools in central Sacramento County, with northern hardpan vernal pools in the foothills of the Sierra Nevada, and with vernal pools of the Interior Valleys of the Coast Range in Napa and Sonoma Counties. Elevation: 3 - 1,450 feet Blooms: March - May.	None. There is no suitable vernal pool habitat present on the project site. The nearest documented extant occurrence is approximately 2.7 miles south of the project site.
<i>Gratiola heterosepala</i> Boggs Lake hedge hyssop	-	E; CRPR 1B.2	Boggs' Lake hedge-hyssop occurs in vernal pools and in marshy areas on the margins of reservoirs and lakes, as well as in man-made habitats such as borrow pits and cattle ponds. Occupied wetlands are amongst annual grassland, <i>Quercus</i> (oak) woodland, <i>Juniperus</i> (juniper) woodland, or coniferous forest (USFWS 2005). Elevation: 33 - 7,720 feet. Blooms: April to August.	Moderate. Suitable habitat is limited to the freshwater marsh within the stream corridor. The closest documented occurrence is 1.4 miles north of the project site
<i>Juncus leiospermus</i> var. <i>ahartii</i> Ahart's dwarf rush	-	CRPR 1B.2	This annual rush species is found in mesic valley and foothill grassland. This species is restricted to wetlands possessing vernal pool-type hydrology; located on the edges of pools. Elevation: 98 - 751 feet Blooms: March and May.	None. No suitable vernal habitat is found within the project site.

Table 4.4-2 Special-Status Plant Species Evaluated for the Independence at Lincoln Project

Common Name and Scientific Name	Regulatory Status ¹		Habitat and Flowering Period	Potential to Occur on the Project Site ²
	Federal	State		
<i>Juncus leiospermus</i> var. <i>leiospermus</i> Red Bluff dwarf rush	-	CRPR 1B.1	Suitable habitat is found in chaparral, valley, and foothill grassland; cismontane woodland; and vernal pools. Found in vernal mesic sites, wetlands, and edges of vernal pools within a mosaic of habitats. Elevation: 110 - 3,315 feet Blooms: March - May.	None. The project site is outside the documented and assumed distribution of the species. The historic observation in the project vicinity is assumed to be a misidentification, which may be the related Ahart's dwarf rush (<i>Juncus leiospermus</i> var. <i>ahartii</i>).
<i>Legenere limosa</i> Legenere	-	CRPR 1B.1	Legenere is an annual herb that flowers and sets seeds during the dry-down phase of the vernal pool hydrologic cycle, sometimes while shallow water or inundated soil remains in the deepest parts of the pool basin. Can be without flowers and self-pollinates. Elevation: 3 - 2,887 feet. Blooms: April - June.	None. No suitable vernal habitat is found within the project site. The nearest documented occurrence is 2.7 miles south of the project site.
<i>Navarretia myersii</i> ssp. <i>myersii</i> Pincushion navarretia	-	CRPR 1B.1	This annual herb is found in vernal features that are often acidic. It is considered a strict vernal pool endemic. Elevation: 65 - 1,082 feet. Blooms: May	None. No suitable vernal habitat is found within the project site. The nearest documented occurrence is from 1939 and is 1.5 miles east of the project site in downtown Lincoln.
<i>Wolffia brasiliensis</i> Brazilian watermeal	-	CRPR 2B.3	Suitable habitat is found in marshes and assorted shallow freshwater swamps. Elevation: 65 - 330 feet Bloom: April - December.	Moderate. Suitable habitat on the project site is limited to freshwater marsh and excavated basins/mitigation ponds within the stream corridor. The nearest documented occurrence is greater than five miles to the north of the project site.

¹Regulatory Status Codes:

State:

California Department of Fish and Wildlife
SE = California Endangered

CRPR = California Rare Plant Rank

1A = Plants presumed extinct in California and rare/extinct elsewhere

1B = Plants considered rare or endangered in California and elsewhere

2 = Plants considered rare or endangered in California, but more common elsewhere.

Sources: CNDDDB 2015, CNPS 2015, WRA, Inc. 2015a; compiled by Ascent Environmental in 2015

² Potential for Occurrence Definitions:

Present—Species was observed in the project site during site visits conducted for this analysis or was documented there by another reputable source.

High—All of the species' specific life history requirements can be met by habitat present in the project site, and populations are known to occur in the immediate vicinity.

Moderate—Some or all of the species life history requirements are provided by habitat in the project site; populations may not be known to occur in the immediate vicinity, but are known to occur in the Region.

Low—Species not likely to occur because of marginal habitat quality or distance from known occurrences.

None—None of the species' life history requirements are provided by habitat in the project site and/or the project site is outside of the known distribution for the species. Any occurrence would be very unlikely.

Table 4.4-3 Special-Status Animal Species Evaluated for the Independence at Lincoln Project

Common Name and <i>Scientific Name</i>	Regulatory Status ¹		Habitat Associations	Potential to Occur on the Project Site ²
	Federal	State/Other		
Invertebrates				
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	T	-	Dependent on elderberry shrubs (<i>Sambucus</i> spp.) for breeding and feeding habitat. Elderberry shrubs are a common component of riparian forests and adjacent upland habitats in California's Central Valley (USFWS 1999a). Spends most of its life in the larval stage, living within the stems of the elderberry plant. USFWS considers all elderberry shrubs 2.5 centimeters (1 inch) or greater diameter at ground level within the species' range to be potential habitat (USFWS 1999a).	None. No elderberry plants were observed during any biological resource assessment site visits (WRA, Inc. 2015). The nearest documented occurrence is 6.5 miles southeast of the project site.
Conservancy fairy shrimp <i>Branchinecta conservatio</i>	E	-	Suitable habitat is limited to larger more turbid vernal pools and playa pools in grasslands (USFWS 2005). Requires astatic pools in swales formed by old, braided alluvium that are filled by winter/spring rains. Pools must last until June. Found in pools from early November until early April and in elevation from 16 to 5,610 feet. It is a prey species for vernal pool tadpole shrimp.	Low. Previous disturbance to the project site and lack of suitable vernal pool habitat make the presence of this species unlikely on the project site. The nearest documented occurrence is 3.2 miles west of the project site.
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	T	-	Inhabits vernal pools with clear to tea-colored water, most commonly in grass or mud-bottomed swales, or basalt flow depression pools in unplowed grasslands. Occupied pools typically have highly turbid waters, but also occur in pools with clear water with aquatic vegetation that provides shelter from predators, and range in size from 54 square feet to 84 acres (USFWS 2007).	Low. Previous disturbance to the project site and lack of suitable vernal pool habitat make the presence of this species unlikely on the project site. The nearest documented occurrence is 0.25 mile west of the project site. Parcel immediately west of the project site are designated as Critical Habitat for this species by the USFWS.
Vernal pool tadpole shrimp <i>Lepidurus packardii</i>	E	-	Vernal pool tadpole shrimp occur in a variety of natural and artificial seasonally inundated habitats that are wet for at least seven weeks and dry in summer (USFWS 2005). This species is typically associated with low-alkalinity seasonal pools in unplowed grasslands throughout the northern and eastern portions of the Central Valley. Typically found below 984 feet in elevation.	Low. Previous disturbance to the project site and lack of suitable vernal pool habitat make the presence of this species unlikely on the project site. The nearest documented occurrence is three miles west of the project site.
Fish				
Steelhead – Central Valley Distinct Population Segment (DPS) <i>Oncorhynchus mykiss irideus</i>	T	-	The Central Valley Ecologically Significant Unit (ESU) includes all river reaches and estuarine areas accessible to listed steelhead in the Sacramento and San Joaquin Rivers and their tributaries in California. Spawning habitat for steelhead is limited to cool perennial streams with high dissolved oxygen levels and fast flowing water. Riparian cover, riffles for spawning, and deep pools are required for successful breeding.	None. The project site is located outside both the extant and observed range of this species.
Hardhead minnow <i>Mylopharodon conocephalus</i>	-	SSC	Low to mid-elevation streams in the Sacramento-San Joaquin drainage. Clear, deep pools with sand-gravel/boulder bottoms and slow water velocity. Not found where exotic centrarchids predominate.	Moderate. Seasonal habitat occurs in the streams of the project site. Isolated pools may provide potential perennial habitat.

Table 4.4-3 Special-Status Animal Species Evaluated for the Independence at Lincoln Project

Common Name and <i>Scientific Name</i>	Regulatory Status ¹		Habitat Associations	Potential to Occur on the Project Site ²
	Federal	State/Other		
Sacramento splittail <i>Pogonichthys macrolepidotus</i>	-	SSC	Endemic to the Sacramento Delta, Suisun Bay and associated marshes. Found in pooling areas of rivers and lakes as well as backwaters; able to survive in brackish waters. Requires flooded vegetation for spawning and juvenile foraging habitat. Spawning occurs over flooded stream bank vegetation in sloughs and in slow moving large rivers	None. The project site is located outside both the extant and observed range of this species.
Delta smelt <i>Hypomesus transpacificus</i>	T	SE	Spawns in tidally influenced freshwater wetlands and seasonally submerged uplands along the Sacramento River, downstream from its confluence with the American River. Lives in the Sacramento-San Joaquin estuary in areas where salt and freshwater systems meet. Occurs seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay. Seldom found at salinities greater than 10 parts per trillion (ppt); most often at salinities greater than two ppt.	None. The project site is located outside both the extant and observed range of this species.
Amphibians				
California red-legged frog <i>Rana draytonii</i>	T	SSC	Breeds in semi-permanent and perennial water sources often with dense, shrubby or emergent riparian vegetation including stock ponds and marshes; uses a variety of wetland habitats including streams during the summer months.	None. No suitable breeding habitat is located on-site due to the presence of bull frogs (<i>Rana catesbeiana</i>) which outcompete the red-legged frogs for resources and prey on them. The project site is outside of the documented range of this species. The nearest occurrence is 7.5 miles to the southwest.
Western spadefoot <i>Spea (=Scaphiopus) hammondi</i>	-	SSC	Occurs in shallow temporary pools (i.e., vernal pools and seasonal wetlands) adjacent to annual grassland habitat. Prefers open areas with sandy or gravelly soils in a variety of habitats including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Almost completely terrestrial, entering water only to breed; spends the majority of their live in constructed burrows. Breeds from January to May in temporary pools that do not contain bullfrogs, fish, or crayfish.	Low. The disturbed nature of the waste water treatment plant and the mitigation site, and the presence of bullfrogs result in poor breeding or burrowing habitat on the site (WRA, Inc. 2015). Closest documented occurrence is greater than 5 miles southwest of the project site.
Giant garter snake <i>Thamnophis gígás</i>	T	ST	The giant garter snake inhabits marshes, sloughs, ponds, small lakes, low gradient streams, other waterways, agricultural wetlands, such as irrigation and drainage canals and rice fields, and the adjacent uplands (USFWS 1999b). Giant garter snakes require: (1) sufficient water during the active summer season (May 1 through September 30) to supply food (fish and amphibians) and cover; (2) vegetated banks for basking located immediately adjacent to water; (3) emergent vegetation for cover during the active season; and (4) high ground or uplands, such as levees or railroad grades, that provide cover and refugia from floodwaters during the dormant winter season (USFWS 1999b). The dormant season typically extends	None. The project site is outside of the known range of the species. The nearest occurrence is 12 miles to the west.

Table 4.4-3 Special-Status Animal Species Evaluated for the Independence at Lincoln Project

Common Name and <i>Scientific Name</i>	Regulatory Status ¹		Habitat Associations	Potential to Occur on the Project Site ²
	Federal	State/Other		
			from October 2 to April 31, although this is largely weather-dependent. The active season extends from May 1 to October 1.	
Western pond turtle <i>Actinemys marmorata</i>	-	SSC	Inhabits permanent or nearly permanent bodies of water in many habitat types below 6,000 feet elevation. Requires still or slow moving water with in-stream emergent woody debris, rocks, or other similar features for basking sites. Typically nests in grassy, open habitat. Suitable habitat found in chaparral, grasslands, coniferous forests in fine, loose soils.	High. Suitable aquatic and upland habitat occurs on the project site. The closest documented occurrence is five miles to the east of the project site.
Birds				
Tricolored blackbird <i>Agelaius tricolor</i>	-	CE;SSC	Suitable nesting habitat is in freshwater marsh or other areas with dense, emergent vegetation such as dense cattails or tules and also in thickets of blackberry and willow. Breeds in March through July. Primarily forages on seeds and invertebrates, and requires an abundant, concentrated supply of insects for successful breeding colonies. May also forage in wet and dry vernal pools, seasonal wetlands, riparian scrub, and open marsh borders. Most foraging occurs within 3.1 miles of colony sites (Beedy 2008).	High. Suitable nesting habitat is present in the seasonal wetlands located in the eastern half of the project site. Closest documented occurrence is about four miles north of the project site.
Grasshopper sparrow <i>Ammodramus savannarum</i>	-	SSC	Nests and forages in dense grasslands; favors a mix of native grasses, forbs, and scattered shrubs. Summer resident.	High. Suitable nesting habitat is present in the freshwater marsh and emergent vegetation along the stream channel on the project site.
Golden eagle <i>Aquila chrysaetos</i>	BGEPA	FP	Found in mountains, deserts, and foothills throughout California. Nest on cliffs and escarpments or in tall trees. Preys on small mammals.	Low. Suitable nesting habitat is not present on the project site. Due to disturbance levels on and near the project site, and lack of rocky cliffs or deep canyons for nesting, this species is not likely to nest in the project site.
Short-eared owl <i>Asio flammeus</i>	-	SSC	Suitable habitat includes open areas with few trees including grasslands, marshes, wetlands, meadows, prairies, dunes, and irrigated lands (Shurford and Gardali 2008). Closely associated with population cycles of voles (<i>Microtus</i> spp).	Low. Suitable habitat for nesting is located in grassland and freshwater marsh habitats on the project site. However, the project site is outside the documented range of this species.
Long-eared owl <i>Asio otus</i>	-	SSC	Nests in woodland, forest, and open settings (e.g., grassland, shrub-steppe, and desert). Occupies wooded and nonwooded areas that support relatively dense vegetation (e.g., trees, shrubs) adjacent to or within larger open areas such as grasslands or meadows (i.e., habitat edges) (Shurford and Gardali 2008).	Low. Marginal nesting habitat is located in woodland and grassland habitats on the project site. The project site is outside the documented range of this species.
Burrowing owl <i>Athene cunicularia</i>	-	SSC	Suitable habitat is found in annual and perennial grasslands, fallow agricultural fields, and open oak savannah; favors canopy covers less than 30 percent of the ground surface (DeSante et al. 1997). Dependent on pre-existing burrows; usually associated with ground squirrels. Opportunistic feeders, they primarily feed on	Moderate. The disturbed nature of the wastewater treatment plant and the lack of suitable burrows observed on the project site result in poor nesting or burrowing habitat on the site. Grasslands are present on the site and berms

Table 4.4-3 Special-Status Animal Species Evaluated for the Independence at Lincoln Project

Common Name and <i>Scientific Name</i>	Regulatory Status ¹		Habitat Associations	Potential to Occur on the Project Site ²
	Federal	State/Other		
			arthropods, small mammals and birds found in grasslands, mowed areas, overgrazed grasslands, and agricultural areas near nest sites (Gervais et al. 2008).	are present near the stream corridor. Burrowing owls could winter or possibly nest in these areas if satisfactory burrows and soils are present.
Redhead <i>Aythya americana</i>	-	SSC	Suitable breeding habitat is found in freshwater emergent marshes, usually with deeper water (greater than 3 feet), and dense cattail and/or tule stands. Wintering habitat is limited to large, deep bodies of water. Year-round resident and winter visitor.	Low. Historical sightings were a result of the treatment ponds associated with the wastewater facility. The project site is not within the current breeding range of this species.
Swainson's hawk <i>Buteo swainsonii</i>	-	ST	Breeds in the California Central Valley for the summer. Swainson's hawks typically nest in riparian habitats or isolated trees bordered by suitable foraging habitat. Requires large amounts of agricultural or grasslands area for foraging. Feeds mainly on insects while breeding, but may switch to small rodents due to the energetic demands of reproduction. Key requirements of foraging areas involve high prey densities and availability with minimal distance to the nest site.	Present. Suitable grassland foraging habitat is present within the project site. Suitable nesting trees may be present within oak and riparian woodlands on the site. Swainson's hawks were observed foraging over the project site (WRA, Inc. 2015) and nesting hawks have been documented within five miles of the project site.
Mountain plover <i>Charadrius montanus</i>	-	SSC	A winter visitor to the Central Valley, wintering habitat consists of flat topography with short vegetation such as grasslands or bare ground; agricultural fields are often used. Does not breed in California.	None. The project site is outside the current winter range of this species (Shuford and Gardali 2008).
Black tern <i>Chlidonia niger</i>	-	SSC	In California, black terns breed primarily in the Modoc Plateau region with some breeding in Sacramento and San Joaquin Valleys. Nests in colonies near freshwater lakes, ponds, marshes and flooded agricultural fields.	Low. The limited freshwater and marsh nesting habitat in and adjacent to the project site would not support nesting colonies of terns. All historical occurrences are associated with the previous waste water treatment plant ponds.
Northern harrier <i>Circus cyaneus</i>	-	SSC	Found in a variety of open grassland, wetland, and agricultural habitats. Winters throughout California where suitable habitat occurs. Wintering habitat includes open areas dominated by herbaceous vegetation, such as grassland, pastures, cropland, coastal sand dunes, brackish and freshwater marshes, and estuaries (MacWhirter and Bildstein 1996).	Moderate. Suitable nesting and foraging habitat is present on the project site in the freshwater marsh or seasonal wetlands. However, the freshwater marsh/wetland area may be too fragmented and disturbed for nesting and foraging.
White-tailed kite <i>Elanus leucurus</i>	-	FP	White-tailed kites inhabit low-elevation grasslands, wetlands dominated by grasses, oak woodlands, and agricultural and riparian areas (Dunk 1995). Nests are built in trees that occur in isolation or in riparian areas. Nest sites are closely associated with suitable foraging habitat with high rodent populations in the immediate vicinity of the nest. This year-round resident breeds from February to October, with a peak from May to August.	Present. Suitable nesting and foraging habitat are present on the project site. White-tailed kites were observed at the project site (WRA, Inc. 2015).
Peregrine falcon <i>Falco peregrinus</i>	-	FP	Nest and roost on protected ledges of high cliffs, usually adjacent to water bodies and wetlands that support abundant avian prey. Year-round resident and winter visitor.	None. Suitable cliff nesting habitat is not present on or near the project site. Does not breed within the Central Valley.

Table 4.4-3 Special-Status Animal Species Evaluated for the Independence at Lincoln Project

Common Name and <i>Scientific Name</i>	Regulatory Status ¹		Habitat Associations	Potential to Occur on the Project Site ²
	Federal	State/Other		
Bald eagle <i>Haliaeetus leucocephalus</i>	BGEPA	SE; FP	Use ocean shorelines, lake margins, and river courses for both nesting and wintering. Most nests are within 1 mile of water, in large trees with open branches. Roosts communally in winter.	Low. No suitable habitat present. There are no large bodies of water to support foraging, roosting, or nesting on or near the project site.
Greater sandhill crane <i>Grus Canadensis tabida</i>	-	ST; FP	They use open agricultural habitats, natural vegetation communities, and seasonally managed wetlands. They feed mostly in marshes and grain fields, consuming seeds, grains (including waste grain) and some invertebrates. They need shallow flooded fields for roosting where they can be protected from terrestrial predators. They rarely roost in areas with heavy emergent vegetation. Nests in wetland habitats in northeastern California; winters in the Central Valley.	Low. The project site is not within the breeding range of the species within California. The area may provide marginal wintering habitat although the surrounding development makes this unlikely.
Loggerhead shrike <i>Lanius ludovicianus</i>	-	SSC	Preferred habitats for the loggerhead shrike are open areas that include scattered shrubs, trees, posts, fences, utility lines, or other structures that provide hunting perches with views of open ground, as well as nearby spiny vegetation or man-made structures (such as chain link fences or barbed wire) that provide a location to impale prey items for storage or manipulation (Humble 2008). Prey mainly on arthropods, but also take reptiles, amphibians, fish, small birds, and rodents.	Moderate. Suitable foraging and nesting habitat are present on and adjacent to the project site.
California black rail <i>Laterallus jamaicensis coturniculus</i>	-	ST; FP	Prefers large, undisturbed marshes (saline and freshwater) with dense vegetation. Found year-round in California. Tends to prefer marshes close to a major water source.	Low. The project site is outside of the known breeding range. Suitable nesting habitat close to a large body of water is not present.
Song sparrow (Modesto Population) <i>Melospiza melodia</i>	-	SSC	Breeding and wintering habitat is in emergent freshwater marshes, riparian forests, vegetated irrigation canals and levees and newly planted valley oak restoration sites.	High. Suitable nesting habitat is present in the wetlands on the project site. One documented occurrence is five miles north of the project site.
Bank swallow <i>Riparia</i>	-	ST	Resident to the north central portion of the Central Valley. Nests in fine-textured or sandy banks or cliffs along rivers, streams, ponds, or lakes. Typically nests in colonies. Breeds in Siskiyou, Shasta, and Lassen Counties and along the Sacramento River from Shasta County to Yolo County.	None. No suitable bank nesting habitat is located on the project site. The project site is outside the documented range of this species.
Yellow-headed blackbird <i>Xanthocephalus</i>	-	SSC	Typically breeds in large freshwater wetlands that have tall emergent vegetation such as cattails or tules, in open areas near and over relatively deep water. Summer resident in California. Requires abundant populations of large insects such as dragonflies.	Low. No suitable nesting habitat is present on the project site. Wetland areas are likely too small to be suitable nesting habitat.
Mammals				
American badger <i>Taxidea taxus</i>	-	SSC	Suitable habitat includes dry, open, treeless regions; prairies; parklands; and cold desert areas. Badgers are ground-dwelling animals, and require friable soils that support burrows for den sites and permit digging for prey (e.g., ground squirrels and	Low. Current and historic disturbance to the project site, adjacent development, and the fragmented landscape surrounding the project site make this site unsuitable for

Table 4.4-3 Special-Status Animal Species Evaluated for the Independence at Lincoln Project

Common Name and <i>Scientific Name</i>	Regulatory Status ¹		Habitat Associations	Potential to Occur on the Project Site ²
	Federal	State/Other		
			other small animals). Badgers have large home ranges, are secretive, and spend inactive periods in underground burrows.	badgers. Poor foraging habitat on project site; very few small prey burrows observed (WRA, Inc. 2015a).
Ring-tailed cats <i>Bassariscus astutus</i>	-	FP	Suitable habitat in mixed forests and shrublands near rocky area or riparian habitats. Forages near water and is seldom found more than 0.62 mile from a water source.	Low. Historic disturbance to the project site, adjacent development, and the fragmented landscape surrounding the project site make this site unsuitable for ring-tailed cats. The lack of rocky canyons makes this site less suitable for ring-tailed cats.
Pallid bat <i>Antrozous pallidus</i>	-	SSC	Locally common at lower elevations in California and occurs in grassland, shrubland, woodland, and mixed conifer forests. Absent from highest elevation locations in the Sierra Nevada. Rocky outcrops, caves, crevices, and occasional tree cavities or buildings provide roosts.	Low. No suitable roosting habitat on the project site.
Townsend's big-eared bat <i>Corynorhinus townsendii pallescens</i>	-	CT	Range throughout California, mostly in mesic habitats. Limited by available roost sites (i.e., caves, tunnels, mines, and buildings).	Low. No suitable roosting habitat on the project site. Nearest documented occurrence is greater than five miles east of the project site.
Western red bat <i>Lasiurus blossevillii</i>	-	SSC	Day roosting common in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas. An association with intact riparian habitat may exist (particularly willows, cottonwoods, and sycamores). Prefers gallery riparian forests for breeding.	Low. Riparian habitat is unsuitable for breeding; too few trees suitable for breeding roosts within riparian woodlands.

¹ Regulatory Status Definitions:
 Federal:
 T = Threatened species
 E = Endangered species
 BGEPA = Protected under the Bald and Golden Eagle Protection Act

State/Other:
 California Department of Fish and Game:
 SE = Endangered
 ST = Threatened
 CE = Candidate Endangered
 CT = Candidate Threatened
 FP = Fully Protected
 SSC = Species of special concern

² Potential for Occurrence Definitions:
 Present—Species was observed in the project site during site visits conducted for this analysis or was documented there by another reputable source.
 High—All of the species' specific life history requirements can be met by habitat present in the project site, and populations are known to occur in the immediate vicinity.
 Moderate—Some or all of the species life history requirements are provided by habitat in the project site; populations may not be known to occur in the immediate vicinity, but are known to occur in the Region.
 Low—Species not likely to occur because of marginal habitat quality or distance from known occurrences.
 None—None of the species' life history requirements are provided by habitat in the project site and/or the project site is outside of the known distribution for the species. Any occurrence would be very unlikely.

Sources: CNDDDB 2015, CNPS 2015, WRA, Inc. 2015a; Santos et al. 2014. Compiled by Ascent Environmental in 2015

SENSITIVE NATURAL COMMUNITIES

CDFW maintains a list of plant communities that are native to California (CDFG 2010). Within that list, CDFW identifies sensitive natural communities, which they define as communities that are of limited distribution statewide or within a county or region and often vulnerable to environmental effects of projects; these are afforded considered as sensitive habitats under CEQA. Valley oak woodland, riparian, and wetland habitats are considered sensitive natural communities by CDFW (CDFG 2010). Riparian and wetland habitats are also protected by the state under the CDFG Code Section 1600 to 1607. Habitats located in waters of the United States under the jurisdiction of Section 404 of CWA are also considered sensitive. Additionally, the importance of protecting and preserving wetland and riparian habitats is recognized in the City's General Plan policies. The state of California, through the Oak Woodland Conservation Act, also considers oak woodland preservation important.

Sensitive habitats on the project site include riparian woodland (4.7 acres), freshwater marsh (3.8 acres), valley oak woodland (2.0 acres), perennial stream (2.3 acres), seasonal wetland (1.9 acres), excavated basins/mitigation ponds (1.0 acre) (Table 4.4-1). Exhibit 4.4-3 shows the locations of sensitive habitats.

Waters of the United States

Preliminary wetland delineation and constraint maps for portions of the project site were prepared by WRA, Inc. (2015b). The description of waters of United States in this document is based on this report. Approximately 5.67 acres met the criteria for wetlands and 3.29 acres meet the criteria for non-wetlands and are considered potential jurisdictional features under the Clean Water Act (CWA) Section 404. A total of 8.96 acres of seasonal wetlands, freshwater marshes, perennial stream, and excavated basins/mitigation ponds are potentially jurisdictional wetlands and other waters of the United States (Table 4.4-4). None of these protected features are located within the area disturbed by proposed construction activities.

Table 4.4-4 Summary of Potential CWA Section 404 Jurisdictional Areas		
Land Cover Type	Area (acres)	Potential Jurisdictional Waters of the U.S. (acres)
Potential Jurisdictional Section 404 Wetlands		
Freshwater Marsh	3.77	3.77
Seasonal Wetland	1.90	1.90
Subtotal	5.67	5.67
Potential Jurisdictional Section 404 Non-Wetland Waters		
Perennial Stream	2.29	2.29
Excavated Basin/Mitigation Ponds	1.00	1.00
Subtotal	3.30	3.29
TOTAL	8.97	8.96

Section 1602 Streams and Riparian Areas

Preliminary maps of potentially jurisdictional areas under Section 1602 FGC for portions of the project site were prepared by WRA, Inc. (2015b). Potentially jurisdictional areas include a perennial stream, as well as adjacent riparian vegetation and wetlands. The total area of Section 1602 jurisdiction consists of 13.50 acres and is summarized in Table 4.4-5. None of these protected features are located within the area disturbed by proposed construction activities.

Table 4.4-5 Summary of Potential CDFW Section 1602 Jurisdictional Areas

Land Cover Type	Resource Type	Area (acres)
Waters	Perennial Stream	2.29
	Excavated Basin/Mitigation Ponds	1.00
Riparian Area	Freshwater Marsh	3.77
	Seasonal Wetland	1.74
	Riparian Woodland	4.70
TOTAL		13.50

WILDLIFE MOVEMENT CORRIDORS

The project site contains Markham Ravine, its tributary channel, and associated valley oak woodland, riparian woodlands, and wetlands. Riparian areas, stream corridors and associated wetlands, and oak woodlands are generally considered corridors for wildlife movement in California due to their availability of sheltering, breeding, and foraging migratory species in the region. However, these areas are unlikely to be considered as essential migratory wildlife corridor because of the surrounding development (residential, commercial, airport) and past history of disturbance (e.g., wastewater treatment plant, agriculture, ranching).

The California Essential Habitat Connectivity Project is a peer-reviewed statewide assessment of important habitat linkages (Spencer et al. 2010). The project's goal was to identify large remaining blocks of intact habitat or natural landscape at a coarse spatial scale, and model linkages between them that are important to maintain as corridors for wildlife. This coarse-scale, statewide map was based primarily on the concept of ecological integrity over a very large region, rather than the specific movement and other life history requirements of particular species. There are no Essential Habitat Connectivity Corridors located within the project site (CDFW 2015b).

4.4.2 Regulatory Setting

FEDERAL

Federal Endangered Species Act

USFWS and National Marine Fisheries Service (NMFS) regulate the taking of terrestrial and inland species and anadromous and marine species listed as threatened or endangered under the ESA. In general, persons subject to ESA (including private parties) are prohibited from "taking" endangered or threatened fish and wildlife species on private property, and from "taking" endangered or threatened plants in areas under federal jurisdiction or in violation of state law. Under ESA, the definition of "take" is to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." USFWS has also interpreted the definition of "harm" to include significant habitat modification that could result in take. If a project would result in take of a federally-listed species, either the project applicant must acquire an incidental-take permit, under Section 10(a) of ESA, or if a federal discretionary action is involved, the federal agency consult with USFWS or NMFS under Section 7 of the ESA.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA), first enacted in 1918, provides for protection of international migratory birds and authorizes the Secretary of the Interior to regulate the taking of migratory birds. The MBTA provides that it shall be unlawful, except as permitted by regulations, to pursue, take, or kill any migratory bird, or any part, nest, or egg of any such bird. The current list of species protected by the MBTA can be found in Title 50 of the Code of Federal Regulations (CFR), Section 10.13 (50 CFR 10.13). The list includes nearly all migratory birds native to the United States.

Section 404 of the Clean Water Act

Section 404 of the Federal CWA requires a project applicant to obtain a permit before engaging in any activity that involves any discharge of dredged or fill material into waters of the United States, including wetlands. Fill material is material placed in waters of the United States where the material has the effect of replacing any portion of a water of the United States with dry land, or changing the bottom elevation of any portion of a water of the United States. Waters of the United States include navigable waters of the United States; interstate waters; all other waters where the use, degradation, or destruction of the waters could affect interstate or foreign commerce; relatively permanent tributaries to any of these waters, and wetlands adjacent to these waters. Wetlands are defined as those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Potentially jurisdictional wetlands must meet three wetland delineation criteria: hydrophytic vegetation, hydric soil types, and wetland hydrology. Wetlands that meet the delineation criteria may be jurisdictional under Section 404 of CWA pending USACE verification.

Section 401 Water Quality Certification

Under Section 401 of the CWA, an applicant for a Section 404 permit must obtain a certificate from the appropriate state agency stating that the intended dredging or filling activity is consistent with the state's water quality standards and criteria. In California, the authority to grant water quality certification is delegated by the State Water Resources Control Board to the nine regional water quality control boards (RWQCB).

STATE

California Endangered Species Act

The CESA prohibits the taking of state-listed endangered or threatened species, as well as candidate species being considered for listing. Project proponents may obtain a Section 2081 incidental take permit if the impacts of the take are minimized and fully mitigated, and the take would not jeopardize the continued existence of the species. A "take" of a species, under CESA, is defined as an activity that would directly or indirectly kill an individual of a species. The CESA definition of take does not include "harm" or "harass" as is included in the federal ESA. As a result, the threshold for a take under CESA may be higher than under ESA.

California Native Plant Protection Act

In addition to CESA, the California Native Plant Protection Act provides protection to endangered and rare plant species, subspecies, and varieties of wild native plants in California. The California Native Plant Protection Act definitions of "endangered" and "rare" closely parallel the CESA definitions of endangered and threatened plant species.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act requires that each of the nine RWQCBs prepare and periodically update basin plans for water quality control. Each basin plan sets forth water quality standards for surface water and groundwater and actions to control nonpoint and point sources of pollution to achieve and maintain these standards. Basin plans offer an opportunity to protect wetlands through the establishment of water quality objectives. The RWQCB's jurisdiction includes waters of the United States as well as areas that meet the definition of "waters of the state." Waters of the state is defined as any surface water or groundwater, including saline waters, within the boundaries of the state. The RWQCB has the discretion to take jurisdiction over areas not federally protected under Section 404 of the CWA provided they meet the definition of waters of the state. Mitigation requiring no net loss of wetlands functions and values of waters of the state is typically required by the RWQCB.

Section 1602 of the California Fish and Game Code

All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources are subject to regulation by CDFW under Sections 1600 et seq. of the FGC. Under Section 1602, it is unlawful for any person to substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by CDFW, or use any material from the streambeds, without first notifying CDFW of such activity and obtaining a final agreement authorizing such activity. "Stream" is defined as a body of water that flows at least periodically or intermittently through a bed or channel having banks and that supports fish or other aquatic life. CDFW's jurisdiction within altered or artificial waterways is based on the value of those waterways to fish and wildlife.

Fully Protected Species

Protection of fully protected species is described in Sections 3511, 4700, 5050, and 5515 of the FGC. These statutes prohibit take or possession of fully protected species and do not provide for authorization of incidental take. CDFW has informed nonfederal agencies and private parties that their actions must avoid take of any fully protected species unless the take is covered under a Natural Community Conservation Plan that is approved by CDFW.

Protection for Bird Nests and Raptors

Section 3503 of the FGC states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 specifically states that it is unlawful to take, possess, or destroy any raptors (e.g., hawks, owls, eagles, and falcons), including their nests or eggs. Section 3513 of the FGC codifies the federal MBTA. Violations of these codes include destroying active nests by removing the vegetation in which the nests are located and disturbance of nesting pairs that results in the failure of active raptor nests.

Oak Woodlands Conservation Act

The Oak Woodlands Conservation Act (SB 1334) was signed into California law on September 24, 2004. Section 21083.4 of the California Public Resources Code requires counties to determine if a project within their jurisdiction may result in conversion of oak woodlands that would have a significant adverse effect on the environment. If the lead agency determines that a project would result in a significant adverse effect on oak woodlands, mitigation measures to reduce the significant adverse effect of converting oak woodlands to other land uses are required.

LOCAL

City of Lincoln General Plan

The following policies of the City's General Plan would be applicable to the project:

- ▲ **Policy OSC-1.4:** The city will apply open space designations to all lands located within the 100-year floodway as shown on the FIRM panel or as determined by a project drainage plan and approved by the City Engineer/Director of Public Works; The City will also apply open space designations to all 100-year floodplain fringe areas, and/or remaining floodplain fringe areas as determined by a project drainage plan identifying floodplain fringe encroachment areas, and quantifying their impact along with other improvements to show a zero (0) net impact to the upstream, downstream and adjacent properties. Open space designations will apply to all land located within a minimum of 50 feet from the center channel of all perennial and intermittent streams and creeks providing natural drainage, and to areas consisting of riparian habitat. In designating these areas as open space, the city is preserving natural resources and protecting these areas from development.
- ▲ **Policy OSC-5.6:** The City will maintain a policy of no net loss of wetlands on a project by project basis, which may include an entire specific plan area. For the purpose of identifying such wetlands, the City will accept a map delineating wetlands which has been accepted by the U.S. Army Corps of Engineers

pursuant to Section 404 of the Clean Water Act of 1972. The term “no net loss” may include mitigation implemented through participation in an off-site mitigation bank or similar mitigation mechanism acceptable to the City and permitting agencies.

- ▲ **Policy OSC-5.7:** The City may require project proponents to obtain 404 Permits, and prepare mitigation plans for, or provide for the avoidance, preservation, and maintenance of identified wetlands prior to submitting applications for land use entitlements.
- ▲ **Policy OSC-5.9:** All preserved wetlands shall be dedicated to the City or a non-profit organization acceptable to the City and preserved through perpetual covenants enforceable by the City or other appropriate agencies, to ensure their maintenance and survival. With respect to areas dedicated to the City, acceptance shall be conditioned upon establishment of a lighting and landscaping district or other public or private funding mechanisms acceptable to the City.
- ▲ **Policy OSC-5.11:** Prior to project (i.e., specific plan or individual project) approval, the City shall require a biological study to be prepared by a qualified biologist for any proposed development within areas that contain a moderate to high potential for sensitive habitat. As appropriate, the study shall include the following activities: (1) inventory species listed in the California Native Plant Society Manual of California Vegetation, (2) inventory species identified by the USFWS and CDFG, (3) inventory special status species listed in the CNDDDB, and (4) field survey of the project site by a qualified biologist.
- ▲ **Policy OSC-5.13:** The City shall ensure that lighting in residential areas and along roadways shall be designed to prevent artificial lighting from reflecting into adjacent natural or open space areas.
- ▲ **Policy OSC-7.15:** The City shall maintain wildlife habitat values during design and ongoing maintenance of new park facilities through provision of open space and wildlife corridor areas, protection of native vegetation, and control of use of herbicides and pesticides.

City of Lincoln Oak Tree Preservation Ordinance

City ordinance 459B (Chapter 18.69) encourages the preservation of native oak trees to promote aesthetic values, soil stability, healthy air, ground water absorption, and a host of other natural and human benefits. The ordinance establishes policies for the preservation of all native oak trees within City limits where possible when activities that require approval by the city. If a protected oak tree is removed or irrevocably harmed in violation of conditions of project approval, the city may require one or more of the following: planting of replacement trees; fee payment to the city; additional recourse or penalties.

Placer Legacy Open Space and Agricultural Conservation Program

The Placer Legacy Open Space and Agricultural Conservation Program (Placer Legacy Program) is an innovative and nationally significant endeavor initiated by the County as a basis to realize its objective of comprehensive planning for preservation of biological resources, agricultural lands, and open space, and to serve as a model for future endeavors by similar communities in the United States. The specific objectives of the Placer Legacy Program include preserving the diversity of plant and animal communities and protecting endangered and other special-status plant and animal species. A core interest of the Placer Legacy Program is to enable the County to make itself a willing buyer to persons wishing to sell interest in lands having value for conservation purposes.

Placer County Conservation Plan

The Placer County Conservation Plan (PCCP) is a county-proposed solution to coordinate and streamline the permitting process by allowing local entities to issue state and federal permits. The proposed PCCP is a habitat conservation plan (HCP) under the ESA and a natural community conservation plan (NCCP) under the California Natural Community Conservation Planning Act. As proposed, the PCCP would include the County Aquatic Resources Program to issue permits related to the Federal Clean Water Act and the California Fish and Game Code. The City of Lincoln is currently involved in the development of the PCCP. Although the PCCP

has not been finalized or approved, the project is within the potential future growth area and would not conflict with the draft proposed reserve system for the PCCP (Placer County 2015).

4.4.3 Environmental Impacts and Mitigation Measures

ANALYSIS METHODOLOGY

This section describes potential impacts to biological resources that could result from construction of the project. Information in this section is based on data collected during reconnaissance-level field surveys, and review of other relevant documentation for the project site and surrounding area, including those listed above at the beginning of this chapter.

Primary Impact Mechanisms and Assumptions

Potential impacts associated with the development activities can be classified as either temporary or permanent. It is assumed that all construction impacts would occur year round. Construction impacts would occur over a three to four-year period: from late spring 2017 through the end of 2019/early 2020.

Temporary impacts would include noise-related effects associated with construction activities, including the grading, excavation, or vegetation removal. This analysis assumes that all temporary construction facilities (staging areas, construction offices) would be on site and located within the construction disturbance area as mapped in Exhibit 4.4-3. Therefore, no additional vegetation removal or ground disturbance would occur from temporary construction facilities outside of the disturbance area as mapped. This analysis assumes that temporary ground disturbance or vegetation removal would be restored to natural pre-project conditions following disturbance; this includes any temporary ground disturbance from construction impacts relating to the installation of utility lines, water wells, facilities, development, hiking trails, roads, and water basins.

Permanent impacts generally include effects associated with permanent tree or other vegetation removal and increased human traffic and pets through non-developed areas.

Vegetation and Wildlife

Potential impacts of the project on vegetation and wildlife resources were initially identified by overlaying GIS layers of proposed development components on the land cover maps of the project site and maps of sensitive biological resources. Any natural community and wildlife habitat that overlapped with an area of proposed modification was considered to be directly or indirectly affected during proposed construction. This analysis assumes that removal of vegetation or ground disturbance that could affect wildlife would be located within the construction disturbance area as mapped in Exhibit 4.4-3; this includes any ground disturbance from construction impacts relating to the installation of utility lines, water wells, facilities, development, hiking trails, roads, and water basins.

The direct impact assumptions are as follows:

- ▲ Development, defined as Low Density Residential, Medium Density Residential, Community Commercial, and Public Facility lots, would disturb or remove 100 percent of vegetation;
- ▲ Parks and recreational lots would have complete ground disturbance;
- ▲ Open space impacts would include multiple use trails, a spanning bridge (Nicolaus Road/Markham Ravine), upgrades to an existing creek crossing (Waverly Road/Lot 5/Unnamed Tributary), roads, and utilities;

- ▲ The bridge construction over Markham Ravine near Nicolaus Road (Street 18 bridge) and the creek crossing in Lot 5 over the unnamed Tributary (Street 7 crossing) would include design measures that would minimize impacts to vegetation, water, or soil on the bed and bank of the stream (Wood and Rogers 2016);
- ▲ Utility lines that must cross through the open space corridor and creek would include design measures that would not disturb vegetation, water, or soil on the bed and bank of the stream, nor remove any sensitive vegetation types (Wood and Rogers 2016); these would include jack and bore methods of crossing.

THRESHOLDS OF SIGNIFICANCE

The project would cause a significant impact on biological resources if it would:

- ▲ result in a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species (as defined above) in local or regional plans, policies, or regulations, or by CDFW or USFWS;
- ▲ substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number of restrict the range of an endangered, rare, or threatened species;
- ▲ result in a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS;
- ▲ result in a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA or state protected wetlands as defined by the Porter-Cologne Act (including, but not limited to, marsh, vernal pool, coastal) through direct removal, filling, hydrological interruption, or other means;
- ▲ interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- ▲ conflict with any local applicable policies protecting biological resources; or
- ▲ conflict with the provisions of an adopted HCP, NCCP, or other applicable HCP.

ISSUES NOT DISCUSSED FURTHER

Implementation of the project could result in loss of nests of birds that are protected by the MBTA and Fish and Game Code Section 3503, 3503.5 and 3513. Loss of active nests of non-special status species during project activities would not substantially reduce the abundance of any non-special status species, nor cause any non-special-status species to drop below self-sustaining levels. Because much of the surrounding area supports varying levels of existing development and disturbance, the character of long-term noise disturbance to nests and the area of impacts should not differ substantially from current conditions despite the projected increase in use of the area. As such, potential adverse effects from construction and long-term recreational disturbance on non-special status birds would not alone constitute a significant impact as defined by the significance criteria established for this document. Therefore, impacts to non-special status birds are not further addressed as a CEQA issue in this EIR.

The project site is located within the Pacific flyway, which is a major north-south route for migratory birds along western North America. Large numbers of waterfowl, shorebirds, and cranes may move through the area seasonally and may congregate in wetlands, grasslands, and agricultural fields for winter or use them as resting grounds during longer migrations from the Arctic to Central or South America. A terrestrial wildlife

corridor connects fragmented habitats and, by doing so, helps to increase movement and gene flow between core habitat areas resulting in improved fitness for a species or allows seasonal movement between geographic areas.

The project would not create a barrier to movement of terrestrial species or alter the character of existing habitat available to migrating birds. Wildlife habitat used by migrating birds is mainly located within oak and riparian woodland habitats. Terrestrial movement corridors often follow waterways and riparian woodlands. Construction noise may deter wildlife temporarily from using habitat along the stream corridor. Any effects on habitat used by wildlife during migration or other movements on the project site as a result of construction would be temporary and the project would not result in any long-term obstruction of wildlife movement. Because suitable foraging habitat would be available in adjacent oak and riparian woodlands, the relatively small amount of temporary disturbance associated with construction of the project would not result in substantial effects on wildlife movement patterns. Therefore, this issue is not discussed further in this EIR.

None of the project elements would be constructed within an area covered under an adopted Habitat Conservation Plan, Natural Community Conservation Plan, endangered species Recovery Plan, or other approved local, regional, or state conservation plans. Consequently, implementation of the project would not conflict with the provisions of any adopted conservation plan and this issue is not evaluated further in this EIR.

IMPACT ANALYSIS

Impact 4.4-1: Impacts to wetlands, riparian habitat, and other waters.

Based on site development plans, construction of the project would avoid fill of waters of the United States, effects to wetlands, and effects to waters of the state through implementation of best management practices (BMPs) and a storm water pollution prevention plan (SWPPP). No wetlands or riparian land cover would be directly affected by the project. Bridge construction and creek crossing upgrades at Street 7 and 18 are the only work that would occur within the creek corridor on the project site, but would occur outside of the OHWM and outside of CDFW Section 1602 jurisdictional areas. This would be a **less-than-significant** impact.

The CWA regulates fill or impacts to Waters of the United States below the OHWM. The City of Lincoln General Plan Policy OCS-5.6 and 5.7 requires compliance with Section 404 of the CWA. All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California are subject to regulation by CDFW under Section 1602 of the FGC. Section 1602 of the FGC requires a Streambed Alteration Permit if the bed or the bank of a stream is altered. The City of Lincoln General Plan Policies OCS-1.6 and 1.7 protect waterways from sedimentation and soil erosion related to new construction or contour grading and vegetation disturbance in development areas; revegetation of disturbed or erosive slopes is required by OCS-1.7. Riparian and wetland habitats are considered sensitive natural communities by CDFW (CDFG 2010).

The project would involve construction activities adjacent to protected waterways, aquatic features, and wetlands; these activities include grading and berm removal, as well as the construction of a trail, a spanning bridge, utility lines, six water quality basins, and upgrades to an existing culvert creek crossing. No protected riparian or wetland vegetation is proposed for removal (Exhibit 4.4-3) or would be affected by grading within the disturbance area. Based on site development plans, no ground disturbance would occur within protected wetlands or waters of the United States or waters of the State (Exhibit 4.4-3) and the implementation of BMPs and a SWPPP, as required by the City of Lincoln Municipal Code (Chapter 13.30 - Construction Storm Water Runoff Control, Sections 13.30.120 and 13.30.100) and City General Plan Policies OCS-1.6 and 1.7, would minimize and prevent erosion or sedimentation into waterways or ponds on the project site. As a result, construction of the project would avoid fill of waters of the United States, effects to wetlands, and effects to waters of the state. Further, with implementation of the BMPs and a SWPPP as described in the Project Description, the project would be consistent with General Plan Policies OSC-1.6, 1.7,

5.6, and 5.7 because these practices would minimize and prevent erosion or sedimentation into wetlands, waterways, and ponds on the project site.

Bridge construction at Street 18 and the creek crossing upgrade at Street 7 are the only construction activities that would occur within the creek corridor on the project site. Under the project, the Street 7 crossing is an upgrade to an existing culvert creek crossing; ground disturbance would be restricted to the existing crossing and culvert. As indicated in Exhibit 4.4-2, the crossing location is completely culverted; therefore, the functional top of bank is the culvert pipe itself (Wood Rogers 2016, Gurney, pers. comm., 2016).

Exhibit 4.4-1 shows location of top of bank at site of the Street 18 bridge crossing. The top of bank is very close to the OHWM of the stream (Wood Rogers 2016, Gurney, pers. comm., 2016). The Street 18 bridge construction would be outside of top of bank of Markham's Ravine, spanning the bed and bank of the creek. The bridge construction area is covered by annual grasses and weedy vegetation. The bridge footings and all construction material would be placed at least two feet outside of the OHWM and top of bank (Wood Rogers 2016, Lynch, pers. comm., 2016; Wood Rogers 2016, Gurney, pers. comm., 2016). No fill material or discharge to Markham's Ravine would occur. No wetlands, riparian habitat, or other waters would be affected by constructing the bridges at Street 7 or Street 18. Therefore, impacts to wetlands, riparian habitat and other waters would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 4.4-2: Impacts to Swainson's hawk, white-tailed kite, burrowing owl, and other nesting raptors.

Implementation of the project could disturb nesting Swainson's hawk, white-tailed kite, burrowing owl, and other nesting raptors, potentially resulting in their abandonment, failure, and/or mortality of chicks and eggs. Individual mortality and loss of nests would be a **potentially significant** impact.

The project site contains isolated trees as well as riparian and oak woodland land cover that could be used for nesting by hawks and owls. The non-native grasslands and adjacent agricultural fields provide potential foraging habitat for hawk and other raptors.

According to the CNDDDB, the closest documented nesting of Swainson's hawks is about half a mile northeast of the project site in a valley oak in 2003; additionally, there are several other documented nesting occurrences within 5 miles (CDFW 2015). Swainson's hawks were observed soaring over the project site during the August 2015 WRA site visit (WRA, Inc. 2015a). The foraging habitat on the project site is considered low quality for Swainson's hawk because it is mostly disturbed soils from the former wastewater treatment plant and is fragmented and disturbed by adjacent land uses. White-tailed kite, a Fully Protected species under the FGC, has also been observed foraging over the project site and could also nest in large trees on or near the project site (WRA, Inc. 2015a). Western burrowing owl, which is designated by CDFW as a species of special concern, nests in burrows and could also nest in the disturbed and non-native grassland habitat on the project site.

Construction and demolition activities for the project may remove nest trees or disturb active raptor nests, potentially resulting in nest abandonment by the adults and mortality of chicks and eggs. Nest loss or chick mortality would be a **potentially significant** impact for nesting raptors.

Mitigation 4.4-2: Impacts to Swainson's hawk, white-tailed kite, burrowing owl, and other nesting raptors.

Tree-nesting raptors (including Swainson's hawk and white-tailed kite):

- ▲ If removal of a known nest tree is required, it shall be removed when no active nests are present, generally between October 1 and February 1.
- ▲ If project activity would commence between February 2nd and September 30th, a qualified biologist shall be retained to conduct preconstruction surveys for active nests in suitable habitat on and within 0.25 mile of the project site no more than 14 days and no less than seven days before commencement of construction. If this survey does not identify any nesting raptors in the area within the project site that would be disturbed plus the 0.25-mile radius, no further mitigation would be required.
- ▲ If an occupied nest is present, CDFW guidelines recommend implementation of a 0.25- mile buffer for Swainson's hawk (CDFG 1994) and 500 feet for other tree-nesting raptors, but the size of the buffer may be adjusted if a qualified biologist and CDFW determine that it would not be likely to adversely affect the nest. No project activity shall commence within the buffer area until a qualified biologist confirms that the nest is no longer active or that the young have fully fledged. Monitoring of the nest by a qualified biologist shall be required if the activity has potential to adversely affect the nest. For Swainson's hawks, no intensive new disturbances or other project-related activities that could cause nest abandonment or forced fledging, shall be initiated within the ¼-mile (buffer zone) of an active nest between March 1 - September 15 (CDFG 1994).

Burrowing owl:

- ▲ A qualified biologist shall be retained to conduct focused breeding and nonbreeding season surveys for burrowing owls in areas of suitable habitat on and within 150 meters of project activities. Surveys shall be conducted prior to the start of construction activities during breeding season. Surveys shall be conducted before project activity following updated survey guidelines (CDFG 2012).
- ▲ During the breeding season (February 1 through August 31) occupied burrows shall not be disturbed. The development of a protective buffer shall be supported by a qualified biologist. The protective buffer shall be informed by monitoring the burrowing owls sensitivity and shall be put in place to prevent burrow destruction and disturbance to nest sites (including nest abandonment and loss of eggs or young). The 2012 CDFG Staff report identifies variables to consider for the buffer such as habitual disturbances (visual and audible), existing vegetation, and type and extent of disturbance and impact. The staff report gives general guidelines for buffers during the breeding season. It recommends that, at minimum, the protective buffer during the breeding season be 200 meters; moving up to 500 meters for high levels of disturbance. These guidelines shall be followed. If activities are allowed closer than these recommended setback distances, then a broad-scale, long-term, scientifically-rigorous monitoring program that ensures that the owls are not detrimentally affected by the alternative approach shall be conducted. The protective buffer shall remain until the end of the breeding season unless a qualified biologist approved by the permitting agencies verifies through non-invasive means that either: 1) the birds have not begun egg-laying, or 2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. Once the fledglings are capable of independent survival, the burrow can be destroyed.
- ▲ If occupied burrows cannot be avoided, burrowing owls occupying the project site shall be evicted from the project site during the non-breeding season (September 1 through January 31) by passive relocation to encourage owls to move to alternative burrows outside of the disturbance area. A Passive Relocation Plan shall be prepared as described in the CDFG Staff Report on Burrowing Owls (2012). No passive relocation shall occur until CDFW approves the plan. No occupied burrows found by the survey shall be disturbed during the breeding season. After burrowing owls have been confirmed absent or removed from the site, the burrows may be destroyed.

Significance after Mitigation

Implementation of Mitigation Measure 4.4-2 would reduce potentially significant impacts on Swainson's hawk, white-tailed kite, burrowing owl, and other nesting raptors to **less-than-significant** levels because it would ensure that project activities would not remove an active nest tree or burrow, disturb nest sites, and prevent nest abandonment and loss of eggs, young, or individuals.

Impact 4.4-3: Direct loss or disturbance of special-status bird (non-raptor) nests.

Vegetation clearing and other construction activities for the project could result in the loss of individuals or nests, or disruptions to nesting attempts of tricolored blackbird and other special-status bird species if active nests are present during construction. The potential disturbance or loss of tricolored blackbird and other special-status bird nests would be **potentially significant**.

Special-status species with potential to nest on the project site include tricolored blackbird, grasshopper sparrow, loggerhead shrike, and song sparrow (Modesto population). There are no known locations of these species on or adjacent to the project site.

Tricolored blackbird is designated as a species of special concern and was designated as a candidate for state threatened status by the California Fish and Game Commission on December 10, 2015. As a candidate species, the tricolored blackbird receives the same legal protection afforded to an endangered or threatened species (Fish & Game Code, § 2085). Tricolored blackbirds are colonial nesters that prefer nesting in thick stands of emergent wetland vegetation such as cattails, tules, and blackberries. They require a permanent water source at or adjacent to their nesting area. Tricolored blackbirds have also been observed nesting in riparian vegetation such as willows (*Salix* spp.), thistles (*Cirsium* spp.), wild rose (*Rosa* spp.) when freshwater emergent vegetation is not available. They nest from April through August. Nesting areas are usually within three miles of foraging areas (i.e., rice fields, pond margins, and grasslands). Freshwater marsh and blackberry bushes present in mesic areas within the project site could provide potential nesting habitat for tricolored blackbirds. Non-native grasslands and adjacent agricultural fields could be used for foraging.

Grasshopper sparrow, which is designated as a CDFW species of special concern, prefers short to middle-height, moderately open grasslands with scattered shrubs. It forages mainly on grasshoppers, but also eats seeds of grassland plants such as oats (*Avena* spp). Non-native grasslands would provide habitat within the project site for nesting and foraging; adjacent agricultural fields would also be used as foraging habitat.

Loggerhead shrike, which is designated by CDFW as a species of special concern, could nest in shrub or trees on the project site. It forages mainly on small mammals and birds and uses fences and other perches with sharp objects to impale prey for eating.

Song sparrow (Modesto population), which is designated by CDFW as a species of special concern, could be found nesting in riparian or wetland habitats on the project site. Construction activities on or near these habitats on the north end of the project site during the breeding season could disturb nesting song sparrows, including causing nest abandonment and mortality to eggs and chicks.

The area of proposed development is located mostly in the area of the decommissioned wastewater treatment facility, which currently has no vegetation due to demolition and decommissioning activities. Areas proposed for construction outside of the facility footprint may have shrubs or trees in which these species could nest. Construction of the buildings, grading, and stockpiling of materials may cause disturbance to special-status birds nesting in the open space area or on adjacent natural parcels. In addition to potential damage or direct removal of an active nest, these construction activities could result in noise, dust, and other disturbances to nesting birds, resulting in potential nest abandonment and mortality to eggs and chicks.

Vegetation clearing and other construction activities for the project could result in the loss of individuals or nests, or disruptions to nesting attempts, of tricolored blackbird and other special-status bird species, if they nest in the project site or vicinity in the future prior to construction. The potential disturbance or loss of tricolored blackbird and other special-status bird nests would be **potentially significant**.

Mitigation 4.4-3: Direct loss or disturbance of special-status bird (non-raptor) nests.

- a. To the extent feasible, construction-related vegetation removal shall occur before the nesting season (February 15 – September 15). If vegetation removal or other disturbance related to construction is required during the nesting season, focused surveys for active nests of special-status birds shall be conducted before and within 14 days of initiating construction. A qualified biologist shall conduct preconstruction surveys to identify active nests that could be affected. The appropriate area to be surveyed and timing of the survey may vary depending on the activity and species that could be affected. If no active nests are found during focused surveys, no further mitigation shall be required.
- b. Should any active tricolor blackbird colonies or other special-status bird be found nesting on the project site, the project applicant, in consultation with the City and CDFW, shall avoid all active colony and nest sites while the nest is occupied with adults and/or young. This avoidance could consist of delaying construction to avoid the nesting season or establishing a buffer around the colony or nest site. If the construction cannot be delayed, avoidance shall include the establishment of a non-disturbance buffer zone around the colony site. The size of the buffer zone shall be determined in consultation with the City and CDFW, and shall be, at a minimum, 100 feet. The buffer zone shall be delineated by highly visible temporary construction fencing. Any occupied nest shall be monitored by a qualified biologist to determine when the nest is no longer used.

Significance after Mitigation

With implementation of Mitigation Measure 4.4-3, the potential loss of individuals or nests of tricolored blackbird and other special-status bird species as a result of project construction would be minimized because vegetation would be removed prior to the nesting season, construction timing shall be modified to avoid nesting season, or buffer zones shall be established to protect active nests. Therefore, this impact would be reduced to a **less-than-significant** level.

Impact 4.4-4: Direct loss or disturbance of western pond turtles.

Implementation of the project would avoid construction activities in aquatic habitat. Conversion of upland habitat would not result in a substantial loss of nesting habitat for western pond turtle because most grassland adjacent to the creek would be preserved as open space. Much of the uplands on site are not suitable for pond turtle nests because they contain gravel, cobble, and other fill material, due to the former use as a wastewater treatment plant. Impacts to western pond turtle would be **less-than-significant**.

Markham's Ravine and its tributary have vegetation, rocks, and woody debris that provide potential basking substrate for western pond turtles. The creek corridor provides water year-round and has suitable open space on its banks, which provide suitable habitat for turtles. Much of the upland habitat adjacent to the creek was previously used as a wastewater treatment plant and contains fill materials that are unlikely to provide suitable nesting habitat for pond turtle; however, some of the grassland land cover on the site may contain fine, friable soils that are suitable nesting locations for pond turtles. Most of the grassland immediately adjacent to Markham's Ravine would be preserved as open space (Exhibit 4.4-3). The conversion of grassland on the project site does not represent a substantial loss of nesting habitat for western pond turtle. Construction activities are designed to avoid impacts to aquatic habitat. Therefore, because no project activities would occur in the aquatic habitat and conversion of grassland habitat is minimal, impacts to western pond turtle are considered **less-than-significant**.

Mitigation Measures

No mitigation is required.

Impact 4.4-5: Loss or lethal damage of protected native oak trees.

Removal or irrevocable, lethal damage to a protected native oak trees requires a tree permit by the City under their Oak Tree Preservation Ordinance (Ord. 459B §1, City of Lincoln 1984). Oak woodlands are protected under the state Oak Woodland Conservation Act because of their value to native wildlife and biodiversity in the state. Construction of residential lots, the proposed Street 18 bridge construction, and the road widening on Nicolaus Road could remove or lethally damage individual protected native oak trees on or adjacent to the project site. The potential for construction to adversely affect native oak trees and woodlands, and conflict with local and state ordinances protecting them, would result in a **significant** impact.

Native oak trees are beneficial to the health and welfare of people through their contribution to aesthetics, soil retention, air quality, climate balance, water absorption, erosion, shade production, and energy consumption. Native oaks also provide important habitat to wildlife through production of acorns as forage, branches for shelter, and abundant cavities for cover and reproduction. Project development may require the removal of native oak trees within or adjacent to residential lots or the proposed bridge construction near Nicolaus Road (Street 18 bridge), and the road widening on Nicolaus Road. Removal or irrevocable, lethal damage to a protected native oak tree requires a tree permit by the City under their Oak Tree Preservation Ordinance (Ord. 459B §1, 1984). Removal of oak woodlands may require mitigation or preservation of oak woodland habitat as compensation in accordance with the Oak Woodland Preservation Act. Table 4.4-1 identifies the removal of 0.18 acre of Valley Oak Woodland land cover type from the project site. Additionally, protected trees located on the edge of some development lots or the edge of grading areas could be affected indirectly by construction activities through lethal damage to root systems. The potential for construction to adversely affect native oak trees and oak woodlands, and conflict with local and state policies protecting them, would result in a **significant** impact.

Mitigation 4.4-5: Loss or lethal damage of protected native oak trees.

To reduce the loss of protected native oak trees, the applicant shall comply with all conditions of project approval and any City guidelines for protected native oak trees and as stated in City of Lincoln Department of Public Works Design Criteria and Procedures Manual (City of Lincoln 2004). The condition for project approval and a tree permit may include:

- ▲ Submission of grading plans for an approved grading permit in conformance with the Tree Permit Conditions. Grading plans shall show all existing trees (greater than six inches in diameter at base), the protected zone of any protected trees, and shall show approved protective fencing locations. Encroachments into the protected zone would require a tree permit.
- ▲ Tree Permit conditions may include, but not be limited to:
 - trenching within the protected zone of a protected tree, when permitted, may only be conducted with hand tools to avoid root damage;
 - minor roots less than one inch in diameter may be cut, but damaged roots shall be traced back and cleanly cut behind any split, cracked or damaged area;
 - major roots over one inch in diameter may not be cut without approval of an arborist;
 - if any native ground surface fabric within the protected zone must be removed for any reason, it shall be protected within 48 hours;
 - an independent low-flow drip irrigation system may be used for establishing drought-tolerant plants within the protected zone of a protected tree; irrigation shall be gradually reduced and discontinued after two years;

- planting live material under native oak trees shall not be permitted within six feet of the trunk of a native oak tree with a diameter breast height (dbh) of 18 inches or less, or within 10 feet of the trunk of a native oak tree with a dbh of more than 18 inches. Only drought tolerant plants shall be permitted within the protected zone of native oak trees;
- a minimum 4-foot high chain link or orange mesh fence shall be installed at the outermost edge of the protected zone of each protected tree or group of protected trees. Signs must be installed on the fence in four locations (equidistant) around each individual protected tree. The size of each sign must be a minimum of two feet by two feet and state, "Warning: This fence shall not be removed or relocated without written authorization from the Planning Department." Fences shall not be removed without written authorization from the City Planning Department;
- a minimum \$10,000 deposit or amount deemed necessary by the approving body shall be posted and maintained to insure the preservation of protected trees during construction. Each violation of any tree permit condition regarding preservation shall result in forfeiture of a portion or the entirety of the deposit;
- if required, preservation devices such as aeration systems, oak tree wells, drains, special paving and cabling systems must be installed per approved plans and certified by a developer's arborist;
- avoidance of cut and/or fill slopes within the protected zone of any tree;
- no grade changes which would cause water to drain to within twice the longest radius of the protected zone of any protected tree;
- certification letters are required for all regulated activity conducted within the protected zone of protected trees;
- as a condition of the tree permit, the applicant shall be required to submit a utility trenching-pathway plan for approval following approval of the project improvement plans.

If protected native oak trees are removed in violation of conditions of project approval, the City may require one or more of the following:

- ▲ Replacement of oak tree(s) removed or irrevocably harmed in violation of the conditions of project approval by planting replacement specimen trees of no less than 15 gallons in size, having a total combined diameter at the time of planting equal to the diameter of the removed tree(s).
- ▲ If the project site is not capable of supporting all the required replacement trees, a fee shall be paid to the City equal to the retail costs at the time of the violation of the replacement trees.
- ▲ In addition to the above requirements, the City may impose another penalty for failure to comply with conditions of project approval.

To protect native oak woodlands and compensate for removal, the developer shall:

- ▲ avoid direct impacts to all oak woodlands to the maximum extent practicable;
- ▲ implement construction tree permit conditions listed above within 50 feet of all valley oak woodlands on and adjacent to the project site;

- ▲ replace oak woodlands on-site with preserves of like habitat at the minimum 1.5:1 ratio for affected canopy area;
- ▲ create a detailed planting and monitoring plan that is approved by the City and CDFW; and
- ▲ a minimum of 80percent survival of all planted trees shall be required within 5 years of planting to ensure that the replanting is successful.

Significance after Mitigation

Mitigation Measure 4.4-5 would reduce impacts from loss of oak woodlands to a **less-than-significant** level by avoiding and/or protecting woodlands that would be preserved on-site, and by planting replacement trees at a 1.5:1 ratio for those that would be lost, which would be consistent with City policies.

Impact 4.4-6: Disturbance or loss of special-status plants.

Freshwater marsh habitat within the open space preserve may provide suitable habitat for special-status plants. Implementation of the project would not result in construction activities that would remove freshwater marsh habitat and the applicant would be required to prepare and implement a SWPPP and BMPs to prevent indirect erosion impacts. Because impacts to special-status plant species would be avoided, this would be a **less-than-significant** impact.

Brazilian watermeal and Boggs Lake hedge hyssop are two special-status species that have the potential to occur within freshwater marsh in the project site. No special-status species surveys have been completed for this project and these species could be present on the project site. However, the nearest proposed disturbance to existing freshwater marsh habitat is located at least nine to ten feet away as shown in Exhibit 4.4-3. Further, consistent with standard City policies and requirements (i.e. City of Lincoln Municipal Code [Chapter 13.30 - Construction Storm Water Runoff Control, Sections 13.30.120 and 13.30.100] and City General Plan Policies OCS-1.6 and 1.7, the applicant would be required to prepare and implement a SWPPP and Erosion Control Plan to prevent soil erosion from affecting nearby freshwater marsh habitat. Therefore, no direct or indirect impacts to marsh habitats where special-status plants could be present would occur. Because impacts to special-status plant species would be avoided, this would be a **less-than-significant** impact.

Mitigation Measures

No mitigation is required.

Impact 4.4-7: Disturbance or loss to hardhead minnow individuals or habitat.

Markham Ravine and its tributary are considered suitable habitat and potentially occupied by the hardhead minnow (Santos 2014). The implementation of a SWPPP and BMPs as required by the City for development projects would prevent soil erosion from affecting water quality or spawning habitat. No riparian habitat or waters would be filled or removed with implementation of the project. Further, the applicant would be required to prepare and implement a SWPPP and BMPs to prevent indirect erosion impacts from construction activities. Thus, there would be no changes to turbidity, water temperature, or water quality as the result of project. Impacts to hardhead minnow would be **less than significant**.

Markham Ravine and its tributary are considered suitable habitat and potentially occupied by the hardhead minnow (Santos et al. 2014). Hardhead minnows are typically found in small to large clear deep streams with slow flowing water at low to mid-elevation environment. They feed on aquatic insects and crustaceans, spawn in the spring around April-May, and tend to spawn near their resident pools. Preferred spawning habitat includes pools, runs, or riffles with the bedding area characterized by gravel and rocky substrate.

Development within or near Markham's Ravine and its tributary would not likely affect individual hardhead minnows. No riparian habitat or waters would be filled or removed with implementation of the project. Further, the applicant would be required to prepare and implement a SWPPP and BMPs to prevent indirect erosion impacts from construction activities. Therefore, no changes to turbidity, water temperature, or water quality as the result of project. Impacts to hardhead minnow would be **less than significant**.

Mitigation Measures

No mitigation is required.

4.5 CULTURAL AND PALEONTOLOGICAL RESOURCES

This section summarizes the *Cultural Resources Report for the Independence at Lincoln Project* dated October 2015, prepared by Basin Research Associates, and also addresses paleontological resources. This section is informed by the provisions and requirements of federal, state, and local laws and regulations that apply to cultural and paleontological resources. This section addresses the potential impacts on cultural/historical, tribal, and paleontological resources that could result from development of the project. Cultural resources include archaeological sites, districts, buildings, structures, and objects generally older than 50 years and considered to be important to a culture, subculture, or community for scientific, traditional, religious, or other reasons. Significant cultural resources are generally defined as those that are listed or have been determined eligible for listing in the National Register of Historic Places (NRHP) (“historic properties”) or the California Register of Historical Resources (CRHR) (“historical resources”). Historical resources may also include sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe (“tribal cultural resources”). Paleontological resources include any fossilized remains, traces, or imprints of organisms, preserved in or on the earth’s crust, that are of paleontological interest and that provide information about the history of life on earth.

4.5.1 Environmental Setting

Prehistoric Setting

The project is situated on the eastern edge of the Sacramento Valley at the base of the Sierra Nevada foothills. Although early occupation in this region occurred at least 9,000 years ago during a time of Early Holocene deglaciation and warming, there are few recorded archaeological sites that predate 5,000 years ago. Only a few projectile points, including one in Placer County west of Lake Tahoe, have been identified in this region that likely date to the Paleoindian Period, and little evidence of prehistoric occupation exists during the succeeding Lower Archaic Period due mainly to burial of the early landscape by alluvial fan and floodplain deposits (Rosenthal et al. 2007). Two sites in Calaveras County are among the few sites in the western north-central Sierra foothills that date to the Lower Archaic. Cultural material found in foothill sites of this age includes large stemmed projectile points, various cobble-core tools, handstones, and milling slabs.

After about 6,000 years ago during the Middle Holocene, the climate cooled, moisture increased, and vegetation communities similar to those of the present were established. During the Middle Archaic Period, which dates from 7,500 to 2,500 years ago, foothills sites are comparatively common, particularly in buried contexts, compared to archaeological sites on the valley floor, which are more common after 4,500 years ago (Rosenthal et al. 2007). The sites indicate populations had an established trade network and followed a seasonal foraging strategy, consuming a variety of animals, plants, and fish and likely occupying higher elevations in the summer and shifting to lower elevations during the winters. The broad temporal Middle Archaic Period is also associated with regional cultural chronologies known as the Windmill Pattern and Mesilla Complex in the lower and northern Sacramento Valley, respectively.

After 2,500 years ago, coincident with the onset of Late Holocene environmental conditions, more specialized technology during the Upper Archaic Period resulted in innovations with new types of shell beads, bone tools, ceremonial blades, and charmstones. A proportional change in types of milling tools suggests there was a shift to a greater reliance on acorns as a dietary staple, with pine nuts a seasonally important food in the uplands (Rosenthal et al. 2007; Wohlgemuth 2004; Young and Rosenthal 2014). The remains of a variety of aquatic resources in the valley and mountains, as well as large Central Valley shell middens, suggest fish and shellfish were also important food resources. Large mounded villages developed in the Sacramento Valley that included accumulations of habitation debris and features, such as hearths, rock-lined ovens, house floors, and burials. The regional cultural traditions during the Upper Archaic in the lower and northern Sacramento Valley are known as the Berkeley Pattern and Bidwell Complex, respectively.

The diversity and number of artifacts and the number of archaeological sites increased in this region after 1,000 years ago during the Late Prehistoric or Emergent Period (Jackson et al. 1994; Rosenthal et al. 2007). This broad temporal period is also associated with regional chronologies known as the Augustine Pattern and Sweetwater Complex in the lower and northern Sacramento Valley, respectively. An increase in sedentism and population led to the development of social stratification, with an elaborate ceremonial and social organization. The Emergent Period was also shaped by a number of cultural innovations, such as the bow and arrow, bone fish hooks, and harpoons. The development of extensive exchange networks during this period was accompanied by the use of clamshell disk beads as a form of currency. Use of the western slopes of the Sierras also appears to have been widespread and intensive during this period, with year-round occupation at sites with elevations below 3,500 feet. As viewed from the archaeological record, the cultural patterns typical of the Emergent Period also begin to reflect the cultural traditions known from historic period Native American groups, including the Nisenan.

Ethnographic Setting

The project is located within the lands historically occupied by the Nisenan (also known as the southern Maidu) (Kroeber 1925; Wilson and Towne 1978). Prior to Euro-American contact, Nisenan territory included the southern extent of the Sacramento Valley, east of the Sacramento River between the North Fork Yuba River and Cosumnes River on the north and south, respectively, and extended east to the crest of the Sierra Nevada Range. The City of Lincoln is within the eastern extent of Valley Nisenan territory, with Hill Nisenan lands to the east.

Like the majority of Native Californians, the Nisenan relied on acorns as a staple food, which were collected in the fall and then stored before processing with bedrock or portable mortars and pestles. In terms of seasonal resources, the drainage systems in the project region would have been very productive environments during prehistoric and ethnohistoric times. Ethnographic Nisenan established central villages and smaller satellite villages along the main watercourses in their territory. The major Nisenan village of *Bamuma* was located just east of the City of Lincoln near Auburn Ravine. A number of archaeological sites and prehistoric burials have been identified within Nisenan territory in the lower Sacramento Valley region.

The traditional culture and lifeways of the Nisenan, who inhabited the fertile plains between Sacramento and the Sierra foothills, were disrupted beginning in the early 1800s. During the Mexican period, native peoples were affected by land grant settlements and decimated by foreign disease epidemics that swept through the densely populated Central Valley. An epidemic that swept the Sacramento Valley in 1833 caused the death of an estimated 75 percent of the Valley Nisenan population, wiping out entire villages. The discovery of gold in 1848 in the heart of Nisenan territory had a devastating impact on the remaining Nisenan. By 1850, with their lands, resources and way of life being overrun by the steady influx of non-native people during the Gold Rush, surviving Nisenan retreated to the foothills and mountains or labored for the growing ranching, farming, and mining industries (Wilson and Towne 1978). Nisenan descendants reside on the Auburn, Berry Creek, Chico, Enterprise, Greenville, Mooretown, Shingle Springs, and Susanville rancherias, as well as on the Round Valley Reservation.

Historic Setting

Sicard's Ranch, a Mexican land grant presented to Theodore Sicard in 1844, was the first non-native settlement in the boundaries of today's Placer County (Hoover et al. 2002). Located on the south bank of the Bear River, the ranch became an important stopping place on the Emigrant Trail over Donner Pass to Sutter's Fort in present-day Sacramento. Along with Claude Chana, Sicard planted peaches and almonds, beginning the first commercial orchard in the Sacramento Valley. After Chana discovered gold in Auburn Ravine in 1848, he purchased Sicard's Ranch and profited from the sale of fruit and vegetables to the miners.

Placer County was organized in 1851 from parts of neighboring Sutter and Yuba counties, and named after its principal economy at that time, placer mining (Hoover et al. 2002). The community of Lincoln at Auburn Ravine was laid out circa 1858/1859 and named after one of the promoters of the California Central Railroad (CCRR) (Basin Research Associates 2015). During the 1860s, Lincoln was the northern terminus of

the CCRR and a bustling stage and freight center. The CCRR was sold to another railroad company in 1868 and then consolidated as part of the Central Pacific Railroad in 1870.

The discovery of rich clay deposits near the railroad line led to the establishment in 1875 of Gladding, McBean & Co, which ushered in a period of prosperity and growth in Lincoln, leading to its incorporation as a city in 1890. Gladding, McBean was the main supplier of architectural terra cotta in California and the Far West between the 1920s and 1940s, and continues to ship clay sewer pipe to towns throughout California. Gold dredging in the 1930s in nearby Auburn and Doty ravines, as well as the continued development of orchards in the bottomlands and livestock ranching in the foothills, also contributed to the region's growth and prosperity.

In the project site, historic maps show an unimproved dirt road and windmill were present by 1941. Aerial photographs show the land was under cultivation by 1961. Historic maps and photographs also show the placement and expansion of the former wastewater treatment ponds between 1980 and 1993, the creation of which eliminated the path of an ephemeral tributary to Markham Ravine. The historic route of present-day Nicolaus Road, which borders the project on the north, was established circa 1843 to access a Feather River ferry crossing approximately 15 miles west of Lincoln. In 2004, as one outcome of economic expansion and the concurrent development of a number of large housing projects, the former treatment facility, on which the project is located, was deactivated and the City began operating a new wastewater treatment and reclamation facility on Fiddymont Road.

KNOWN CULTURAL RESOURCES WITHIN PROJECT SITE

Efforts to identify cultural resources within the project site consisted of a record search by the North Central Information Center (NCIC) at California State University, Sacramento, archival research, review of historic maps and aerial photographs, Native American outreach and consultation, and the conducting of a survey within the project site.

Records Search

The records search at the NCIC revealed six cultural resources studies have been completed within or adjacent to the project site (Table 4.5-1).

Table 4.5-1 Previous Cultural Resources Studies within 0.25 Mile of Project Site				
NCIC Report #	Year of Study	Title of Study	Study Author	Within Project Site
90	1983	An Archeological Reconnaissance of the Joiner Ranch Project Site, Placer County, CA	Clark, Matthew	Adjacent
1989	1990	Archeological Inventory Survey for a Proposed New Elementary School, City of Lincoln, Placer County, CA	Jensen, Peter	Adjacent
4051	1994	Finding of Effect for the Proposed Route 65 Modification Study near Lincoln, Placer County, CA	Caltrans	Adjacent
6587	2004	Determination of Eligibility and Effect for the Fullerton Ranch Project	Peak, Melinda	Adjacent
6855	2006	Cultural Resources Survey Report Markham Ravine Corridor Enhancement Project, City of Lincoln	Steckling, Monica	Within
7840	2006	Historic Property Survey Report and Archaeological Survey Report and Late Discovery Plan and Finding of Effect Report for the Markham Ravine Bridge Replacement	Fernandez, Trish	Adjacent

The records search by the NCIC indicates no cultural resources have been previously recorded within the project site, while three archaeological resources have been recorded within a quarter-mile radius (Table 4.5-2). Two are prehistoric isolated occurrences, while the remnants of a farm or ranch comprise the third resource.

Table 4.5-2 Cultural Resources Previously Recorded within 0.25 Mile of Project Site				
Primary #	Period	Year Recorded	Description	Within Project Site
P-31-000055	Prehistoric	1987	Isolated bowl mortar rim fragment	No
P-31-000056	Prehistoric	1988	Isolated bowl mortar rim fragment	No
P-31-000059	Historic	1988	Farm/ranch remnants (foundations/structure pads, wells, cisterns)	No

Native American Outreach and Consultation

Sacred Lands File Outreach

Basin Research Associates staff contacted the Native American Heritage Commission (NAHC) on September 15, 2015 to request a database search for sacred lands or other cultural properties of significance within or adjacent to the project site. The response from the NAHC dated October 8, 2015, states the sacred lands file search did not identify the presence of cultural resources in the project site. The NAHC provided a list of Native American contacts that might have further knowledge of the project area with respect to cultural resources. Each person or organization identified by the NAHC was contacted by letter and subsequent phone calls. Basin Research Associates received three responses, and several messages have been left on voice mail or with secretaries.

A response by letter dated October 22, 2015 from the Shingle Springs Band of Miwok Indians (SSB) states the tribe is unaware of cultural resources within the project site, and requests to be contacted immediately should new information or human remains be identified. On October 26, 2015, Rose Enos expressed her concern about burial sites along the water course and requested notification of any burial discovery. On October 26, 2015, Darrel Cruz of the Washoe Tribe of Nevada and California recommended contacting the United Auburn Indian Community of the Auburn Rancheria. No response to the letter or follow-up telephone calls was received from representatives on the NAHC contact list for the Colfax Todds Valley Consolidated Tribe, T'si-Akim Maidu, or UAIC.

Senate Bill 18 Consultation

The City sent a notice on August 17, 2015 to request consultation pursuant to Senate Bill 18 (see Regulatory Setting) to all tribes on a list previously provided by the NAHC. Two tribal representatives have contacted the City to date. On September 9, 2015, Daniel Fonseca of the SSB stated the tribe is not aware of cultural resources within the project site but requests notification and the opportunity to confer if new information, including human remains, should be identified. On October 6, 2015, Gene Whitehouse of the UAIC indicated the tribe is not aware of cultural resources within the project site and requested the tribe be contacted if Native American cultural resources should be discovered at the project site.

Assembly Bill 52 Consultation

Pursuant to Assembly Bill 52 (AB 52) (see Regulatory Setting), by letter dated March 11, 2016, the City notified the UAIC of the proposed project in response to a request from the tribe to be notified of projects within its traditionally and culturally affiliated area. In response, by letter postmarked May 6, 2016, the UAIC notified the City that the tribe would like to initiate consultation. The City began consultation, as requested, with the UAIC. Consultation was concluded pursuant to PRC §21080.3.2 by subsequent email correspondence between the UAIC and the City with agreement on a mitigation measure to include UAIC notification and immediate work stoppage if cultural resources are uncovered on-site. Pursuant to PRC § 21082.3, the agreed upon mitigation measure is included as part of this document (See Mitigation Measure 4.5-4 below).

Field Methods

Basin Research Associates archaeological staff conducted a pedestrian survey of the project site in September 2015. Transect intervals ranged from 5 to 20 meters with the exception of a cursory visual inspection of the disturbed treatment/settlement pond areas surrounded by former levees in the northwest corner of the project site, north of Markham Ravine Lower Tributary, and the southeast corner, south of the

tributary. The remainder of the project site is comprised of fields, former treatment facility levees, and the bed and banks of Markham Ravine Lower Tributary. Ground visibility varied from poor to excellent depending on density of vegetation coverage. Ground visibility was poor in the field and vegetated creek bank areas and excellent along dirt access roads and paths, and in the bed of the tributary.

Results

No prehistoric or historic archaeological sites or sites of traditional Native American religious or cultural significance, including sacred sites, contemporary use areas or tribal cultural resources, have been identified in or immediately adjacent to the project site. No historically significant buildings or linear built historic-era resources are located in or immediately adjacent to the project site. The buildings, sheds, and treatment structures within the former treatment facility are modern. Based on these findings, no significant cultural resources found eligible for listing in the CRHR or NRHP or tribal cultural resources are known to occur within the project site.

Archaeological Sensitivity

Review of prior studies, site records, historic maps, aerial photographs, survey results, and disturbance history indicates the project site has a low to low-moderate potential for the discovery of subsurface archaeological material, features, or deposits during project implementation. Prehistoric occupation between and along Auburn Ravine to the south and Markham Ravine to the north would typically have been on elevated ground slightly away from the water courses, while historic-era occupation emphasized the valley bottoms for ranching and agriculture with a focus on developing available water resources for domestic use and livestock. Additionally, the project site has been disturbed by 20 years of agricultural practices (1961 to 1980) and then severely disturbed since 1980 by the footprint of the former treatment facility and various ancillary structures, including levees, culverts, access roads, irrigation pipe system, and channelization of the Markham Ravine tributary at the western extent of the project site. Adjacent land to the north, east, and south has also been substantially modified by construction of roads, a bridge across Markham Ravine, modern housing developments, the Santa Clara Memorial Park Cemetery, and a school bus maintenance facility, as well as commercial development north of Nicolaus Road.

PALEONTOLOGICAL SETTING

The project site is located in the Sacramento Valley at an elevation ranging from 110 to 135 feet at the base of the Sierra Nevada foothills. The depositional history of the Sacramento Valley during the late Quaternary period (1.6 million years ago to the present) included several cycles related to fluctuations in regional and global climate that caused alternating periods of deposition followed by periods of subsidence and erosion. Review of the geologic map prepared by Gutierrez (2011) indicates the project site is underlain by Middle Pleistocene-age alluvial sediments of the Middle Unit of the Riverbank Formation. Riverbank Formation sediments consist of weathered reddish gravel, sand, and silt that form alluvial terraces and fans. Estimates place the age of the formation between 130,000 and 450,000 years before present (Helley and Harwood 1985).

Review of Geologic Maps and Fossil Records

Geologic maps and fossil records covering the geology of the project region were reviewed to determine the exposed or underlying rock units, to delineate their respective distributions in the project site, and to assess their paleontological resource potential. Pleistocene or older (older than 11,000 years) continental sedimentary deposits are considered as having a high paleontological potential. Throughout California, such sedimentary formations have a history of yielding numerous vertebrate fossils of extinct mammals or other fauna. The Pleistocene Riverbank Formation has a high paleontological potential. Vertebrate fossils known to occur in this formation include mammoth, mastodon, ground sloth, bison, coyote, dire wolf, horse, camel, antelope, deer, and squirrel, among others (UCMP 2015). Fossils have mainly been recovered from fine-grained deposits, typically at a depth of 12 feet or more below the surface. Numerous vertebrate fossils have been identified at locations in several Central Valley counties, including Fresno, Madera, Merced, Sacramento, San Joaquin, Stanislaus, Sutter, and Yolo.

A search of the UCMP database indicates 63 fossil localities have been recorded within Placer County (UCMP 2015). Of these, there is only one locality in the UCMP records with vertebrate fossils dating to the Pleistocene, a locality near Rocklin with one American mastodon specimen. Three Miocene-age (23 to 5.3 million years ago) vertebrate fossils, a tortoise, horse, and bony fish, are listed in the database for a locality near Lincoln, and two localities in the county contain vertebrate specimens from the Chico Formation, which dates to the Late Cretaceous (100 to 66 million years ago). The remaining localities in the UCMP database comprise 25 with plant microfossils, 18 with plant fossils, and 16 with invertebrate specimens.

Although the Pleistocene-age Riverbank Formation deposits underlying the project site have a high potential to contain significant paleontological resources, project-related construction activities are not likely to produce significant vertebrate fossil remains due to prior disturbance by agricultural activities and by the footprint of the former wastewater treatment facility and various ancillary structures, as well as due to the relatively shallow depth of the majority of planned ground-disturbing activities. Considering its limited areal extent, the potential is also low for the project to disturb fossiliferous sediments at the southern Markham Ravine bridge crossing where trenchless drilling (jack and bore) and associated driving and reception shafts would occur at a depth of approximately 22 feet below the surface for installation of wastewater pipeline.

4.5.2 Regulatory Setting

FEDERAL

National Historic Preservation Act

The National Historic Preservation Act (NHPA) of 1966 establishes the National Register of Historic Places (NRHP), and defines federal criteria for determining the historical significance of archaeological sites, historic buildings, and other resources. To be eligible for inclusion in the NRHP, a resource must meet at least one of the following four historical significance criteria (delineated at 36 Code of Federal Regulations [CFR] Part 60.4) and must also possess sufficient deposition, and architectural or historic integrity to retain the ability to convey the resource's historic significance. Those resources determined to meet these criteria are eligible for listing in the NRHP and are termed "historic properties." A resource may be eligible for NRHP listing at the local, state, or national level of significance.

A resource is eligible for NRHP inclusion if it possess integrity of location, design, setting, materials, workmanship, feeling, and association, and it:

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

Ordinarily, buildings and structures less than 50 years old are not considered eligible for listing in the NRHP. To retain historic integrity a property will always possess several and usually most aspects that demonstrate integrity and generally would retain most aspects of that integrity. The retention of specific aspects of integrity is paramount for a property to convey its significance. Determining which of these aspects are most important to a particular property requires knowing why, where, and when the property is significant (National Park Service 1997). A resource that lacks integrity or does not meet one of the NRHP criteria is not considered a historic property under federal law, and effects to such a resource are not considered significant under the NHPA. Because the project does not require any federal permits or approvals,

compliance with the NHPA is not required although significant cultural resources may still be listed or determined eligible for NRHP inclusion.

STATE

California Environmental Quality Act

The California Environmental Quality Act (CEQA) of 1970 (Public Resources Code [PRC] PRC §21000, *et seq.*; California Environmental Quality Act Guidelines, California Code of Regulations (CCR), §15000, *et seq.*) is the principal regulatory control addressing whether a project will have a significant effect on the environment, including impacts on historical resources, unique archaeological resources, tribal cultural resources, human remains, and paleontological resources in California. Projects with the potential to adversely affect significant cultural resources must be reviewed through the CEQA process. As the designated CEQA lead agency for approval of the project, the City is responsible for complying with CEQA's requirements regarding the identification of feasible measures to mitigate significant adverse changes to historical resources, unique archaeological resources, tribal cultural resources, human remains, and paleontological resources and ensuring that the measures are enforceable through permit conditions, agreements, or other measures.

State CEQA Guidelines (14 CCR §15064.5), "Determining the Significance of Impacts to Archaeological and Historical Resources," provide further direction regarding cultural resources. Subsection (a) defines the term "historical resources." Subsection (b) explains when a project may be deemed to have a significant effect on historical resources and defines terms used in describing those situations. Subsection (c) describes CEQA's applicability to archaeological sites and provides a bridge between the application of the terms "historical resource" and a "unique" archaeological resource.

Under CEQA, the term "historical resource" includes, but is not limited to:

- ▲ a resource listed in, or determined to be eligible by the State Historical Resources Commission for listing in the CRHR (PRC §5024.1; 14 CCR §4852);
- ▲ a resource included in a local register of historical resources (as defined by PRC §5020.1[k]), or identified in a historical resource survey meeting the requirements of PRC §5024.1(g) (presumption of historical significance);
- ▲ a resource that meets at least one of the following criteria for CRHR listing (provided below); or
- ▲ a resource that the lead agency otherwise determines is a historical resource as defined by PRC Sections 5020(j) or 5024.1.

State CEQA Guidelines (14 CCR §15126.4), "Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects," subsection (b) discusses impacts of maintenance, repair, stabilization, restoration, conservation, or reconstruction of a historical resource. Subsection (b) also discusses mitigation through avoidance of damaging effects on any historical resource of an archaeological nature, preferably by preservation in place, or by data recovery through excavation if avoidance or preservation is not feasible. Data recovery must be conducted in accordance with an adopted data recovery plan.

As noted above, CEQA also requires lead agencies to consider whether projects will affect "unique archaeological resources." PRC Section 21083.2(g) states that "unique archaeological resource" means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following three criteria:

- 1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

- 2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.
- 3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

The State CEQA Guidelines note that if an archaeological resource is neither a unique archaeological nor a historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment (CCR §15064.5(c)(4)). In practice, most archaeological sites that meet the definition of a unique archaeological resource will also meet the definition of a historical resource.

California Register of Historical Resources

PRC Section 5024.1 establishes the CRHR; sets forth the criteria to determine significance (detailed below); defines eligible properties; and lists nomination procedures. The CRHR is “an authoritative listing and guide to be used by State and local agencies, private groups, and citizens in identifying the existing historical resources of the State and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change” (PRC §5024.1[a]). The criteria for eligibility for the CRHR are based upon the NRHP significance criteria (PRC §5024.1[c]). To be eligible for CRHR inclusion, a resource must retain enough of its historic character or appearance (integrity) to be recognizable as a historical resource and to convey the reason for its significance, and must meet at least one of the following criteria:

1. is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
2. is associated with the lives of persons important in our past;
3. embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. has yielded, or may be likely to yield, information important in prehistory or history.

As described in PRC Section 5024.1[d]), resources that are automatically listed in the CRHR include those listed in or formally determined eligible for listing in the NRHP (“historic properties”) and California Historical Landmarks from No. 770 onward. As defined in PRC Sections 5097.9 and 5097.993, Native American historic, cultural, or sacred sites could be listed or eligible for listing in the CRHR pursuant to PRC Section 5024.1.

Assembly Bill 52

Assembly Bill 52 (AB 52) (Chapter 532, Statutes of 2014; PRC §5097.94 amended; PRC §§ 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3 added) was passed on September 25, 2014, and applies to all projects that have a notice of preparation or a notice of negative declaration or mitigated negative declaration filed on or after July 1, 2015. The bill requires that a lead agency notify a California Native American tribe if that tribe has requested, in writing, to be kept informed of proposed projects by the lead agency, prior to the determination whether a negative declaration, mitigated negative declaration, or environmental impact report will be prepared, and then begin consultation if requested in the tribe’s written response. The bill also specifies mitigation measures that may be considered to avoid or minimize impacts on tribal cultural resources (TCRs). Additionally, the Office of Planning and Research will update the Appendix G CEQA checklist by July 1, 2016 to add consideration of TCRs with relevant sample questions.

Per AB 52 TCRs is established as a new category of resources under CEQA. As defined under PRC Section 21074, TCRs are “sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe” that are either: (1) included or determined to be eligible for inclusion in the CRHR; included in a local register of historical resources as defined in PRC Section 5020.1(k); or (2) determined by the lead agency to be significant pursuant to the criteria for inclusion in the CRHR set forth in PRC Section 5024.1(c), if supported by substantial evidence and taking into account the significance of the resource to a California Native American tribe. A “historical resource” as defined in PRC Section 21084.1, a

“unique archaeological resource” as defined in PRC Section 21083.2(g), or a “nonunique archaeological resource” as defined in PRC Section 21083.2(h) may also be TCRs.

Senate Bill 18

Senate Bill 18 (SB 18) (Chapter 904, Statutes of 2004; Government Code Sections 65352.3-5) requires that, prior to the adoption or amendment of a city or county’s general plan or specific plans, the city or county shall consult with California Native American tribes that are on the contact list maintained by the NAHC. The intent of this law is to preserve or mitigate impacts on Native American places, features, and objects, as defined in PRC Sections 5097.9 and 5097.993, which are located within the city or county’s jurisdiction. The law also states that the city or county shall protect the confidentiality of information concerning the specific identity, location, character, and use of those places, features, and objects identified by Native American consultation. Government Code Sections 65362.3 to 65362.5 apply to all general and specific plans adopted and/or amended after March 1, 2005.

California Health and Safety Code

California Health and Safety Code Section 7050.5 requires that if human remains are discovered during construction outside of a dedicated cemetery, the project owner is required to contact the county coroner and further excavation or disturbance of land in the vicinity of the discovery cease until the coroner has made a determination. If the coroner determines the remains are Native American, the coroner must contact NAHC within 24 hours and the procedures outlined in PRC Section 5097.98 must be followed.

Paleontological Resources: California Public Resources Code

The PRC protects paleontological resources through Section 5097.5 which prohibits “knowing and willful” excavation, removal, destruction, injury, and defacement of any paleontological feature on public lands (lands under state, county, city, district, or public authority jurisdiction, or the jurisdiction of a public corporation), except where the agency with jurisdiction has granted permission.

LOCAL

City of Lincoln General Plan

The following City General Plan policies would be applicable to the project:

- ▲ **Policy OSC-6.1:** The City shall use appropriate State and Federal Standards in evaluating the significance of historical resources that are identified in the City.
- ▲ **Policy OSC-6.3.** The City shall support efforts to protect and/or recover archaeological resources.
- ▲ **Policy OSC-6.7:** In the event that archaeological/paleontological resources are discovered during ground disturbing activities, the City shall require that grading and construction work within 100 feet of the find shall be suspended until the significance of the features can be determined by a qualified professional archaeologist/paleontologist as appropriate. The City will require that a qualified archeologist /paleontologist make recommendations for measures necessary to protect the find; or to undertake data recovery, excavation, analysis, and curation of archaeological/paleontological materials, as appropriate.
- ▲ **Policy OSC-6.8:** Prior to project approval, the City shall require project applicant to have a qualified professional archeologist conduct the following activities within the area of potential effects (APE): (1) conduct a record search at the North Central Information Center located at California State University Sacramento and other appropriate historical repositories to determine the extent of previously recorded sites and surveys within the project area, and to develop a historical context within which sites can be evaluated for significance, (2) conduct a field survey to locate, map, and record prehistoric and historic resources, and (3) prepare cultural resource inventory and evaluation reports meeting California Office of Historic Preservation Standards to document the results of the record search and field survey, and to

provide significance evaluations and management recommendations for any identified historical resources within the APE.

- ▲ **Policy OSC-6.9:** The City shall consult with Native American representatives, including appointed representatives from United Auburn Indian Community, to discuss concerns regarding potential impacts to cultural resources and to identify locations of importance to Native Americans, including archeological sites and traditional cultural properties. Coordination with the Native American Heritage Commission should begin at the onset of the review of a proposed project.
- ▲ **Policy OSC-6.10:** Consistent with CEQA Guidelines (Section 15064.5), if human remains are discovered during project construction, it is necessary to comply with state laws relating to prohibitions on disinterring, disturbing, or removing human remains from any location other than a dedicated cemetery (California Health and Safety Code Section 7050.5). If any human remains are discovered or recognized in any location on the project site, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:
 - A. The Placer County Coroner/Sheriff has been informed and has determined that no investigation of the cause of death is required; and if the coroner determines that the remains are of Native American origin,
 1. The coroner shall contact the Native American Heritage Commission (NAHC) within 24 hours.
 2. The NAHC shall identify the person or persons it believes to be the most likely descendent (MLD) from the deceased Native American.
 3. The MLD shall have an opportunity to make a recommendation to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98.
 - B. Native American Heritage Commission was unable to identify a descendent or the descendent failed to make a recommendation within 24 hours after being notified by the commission.
 - C. The County has notified the United Auburn Indian Community (UAIC) Tribal Council and solicited their input.

OTHER

The Impact Mitigation Guidelines published by the Society of Vertebrate Paleontology (SVP) provide a set of standard procedures intended to be applicable to both private and public lands under the jurisdiction of local, city, county, regional, state, and federal agencies (SVP 2010). Protection of paleontological resources includes: (a) assessment of the potential for land to contain significant paleontological resources which could be directly or indirectly impacted, damaged, or destroyed by proposed development and (b) formulation and implementation of measures to mitigate these adverse impacts, including permanent preservation of the site and/or permanent preservation of salvaged fossils along with all contextual data in established institutions.

The SVP Guidelines define the paleontological potential of rock units as high, undetermined, low, or no potential. Sedimentary rock units with a high potential for containing significant nonrenewable paleontological resources are those within which vertebrate or significant invertebrate, plant, or trace fossils have been determined by previous studies to be present or likely to be present. Significant paleontological resources are fossils or assemblages of fossils, which are unique, unusual, rare, uncommon, diagnostically or stratigraphically important, and those which add to the existing body of knowledge in specific areas, stratigraphically, taxonomically, or regionally. Rock units with undetermined potential have little information

available concerning their paleontological content, geologic age, and depositional environment. Further study is needed to determine if these rock units have high or low potential to contain significant paleontological resources.

Rock units with low potential are poorly represented by fossil specimens in institutional collections, or preserve fossils in rare circumstances (e.g., basalt flows or recent colluvium). Metamorphic rocks (such as gneisses and schists) and plutonic igneous rocks (such as granites and diorites) generally have no potential to contain significant paleontological resources. Rock units with low or no potential will not typically require impact mitigation measures to protect fossils.

4.5.3 Environmental Impacts and Mitigation Measures

ANALYSIS METHODOLOGY

Methodology to identify cultural and paleontological resources in the project site included a cultural resources record search, archival research, and review of historic maps and aerial photographs in 2015; Sacred Lands file search by the NAHC and related communication with local Native American groups and individuals undertaken in 2015; initiation by the City in 2015 of SB 18 consultation with listed tribes; notification by the City in 2016 in accordance with AB 52 tribal requests; pedestrian survey by cultural resources specialists conducted in September 2015; and a search of the UCMP database in 2015.

This impact analysis is based on the cultural resources inventory completed for the project (Basin Research Associates 2015), the review of geologic maps and fossil records, and relevant regulations. The project was analyzed in terms of its potential to impact undocumented and potentially significant cultural resources, including buried human remains and tribal cultural resources, within the project site, and its potential to impact undocumented paleontological resources within the project site.

THRESHOLDS OF SIGNIFICANCE

The project would cause a significant impact on cultural resources if the project would:

- ▲ cause a substantial adverse change in the significance of a historical or archaeological resource as defined in State CEQA Guidelines Section 15064.5 or a unique archeological resource as defined in Section 21083.2 of CEQA; or
- ▲ disturb any human remains, including those interred outside of formal cemeteries; or
- ▲ directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or
- ▲ cause a substantial adverse change in the significance of a tribal cultural resource.¹

Section 15064.5 of the State CEQA Guidelines defines “substantial adverse change” as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the resource would be materially impaired. Material impairment includes changes to the physical characteristics that make a historical resource eligible for listing in the CRHR such that the resource would no longer be eligible for the NRHP, CRHR, or local historical registers (CEQA Guidelines, 14 CCR §15064.5 [b][2]).

Section 21083.2 of CEQA defines “unique archaeological resource” as an archeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of

¹ This threshold has been included to address the enactment of AB 52, which requires: “a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment” (PRC §21084.2). Appendix G of the CEQA checklist will be updated on or before July 1, 2016 to add consideration of TCRs with relevant sample questions (PRC §21083.09) that may further develop this threshold.

knowledge, there is a high probability that it meets one or more of the following criteria: (1) that it contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information; (2) that it has a special and particular quality, such as being the oldest of its type or the best available example of its type; or (3) that it is directly associated with a scientifically recognized important prehistoric or historic event or person.

PRC Section 21074 defines TCRs as “sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe” that are listed or determined eligible for CRHR listing, listed in a local register of historical resources, or otherwise determined by the lead agency to be a TCR. A TCR may also be a “historical resource,” “unique archaeological resource,” or a “nonunique archaeological resource.”

IMPACT ANALYSIS

Impact 4.5-1: Damage to or destruction of previously undiscovered cultural resources.

Subsurface disturbances could potentially destroy or damage as-yet undiscovered prehistoric or historic cultural resources. Newly discovered cultural resources could be eligible for listing in the NRHP or CRHR or be unique archaeological resources and could be adversely affected during project construction. This impact would be **potentially significant**.

Based on the more than 50-year history of disturbance within the project site—including agriculture and the footprint of the former treatment facility and various ancillary structures—the project site has a low to low-moderate potential for the discovery of prehistoric, ethnohistoric, or historic-era cultural material or subsurface deposits. Although no NRHP- or CRHR-listed or eligible resources (historic properties or historical resources), or unique archaeological resources have been documented in the project site, the project is located in a region where significant prehistoric and historic-era cultural resources have been recorded and there remains a potential that undocumented cultural resources could be unearthed or otherwise discovered during ground-disturbing and construction activities. Prehistoric or ethnohistoric materials might include flaked stone tools, tool-making debris, stone milling tools, shell or bone items, and fire-affected rock or soil darkened by cultural activities (midden); examples of significant discoveries would include villages and cemeteries. Historic materials might include metal, glass, or ceramic artifacts; examples of significant discoveries might include former privies or refuse pits. Due to the possible presence of undocumented cultural resources within the project site, construction-related impacts on cultural resources would be **potentially significant**.

Mitigation Measure 4.5-1: Damage to or destruction of previously undiscovered cultural resources.

If cultural resources are discovered during project-related construction activities, all ground disturbances within a minimum of 50 feet of the find shall be halted until a qualified professional archaeologist can evaluate the discovery. The archaeologist shall examine the resources, assess their significance, and recommend appropriate procedures to the lead agency to either further investigate or mitigate adverse impacts (e.g., adverse effect on a significant historical resource). If the find is determined to be a significant historical resource and the archaeological resource cannot be avoided, then applicable mitigation measures for significant resources shall be completed (e.g., preservation in place, data recovery program pursuant to PRC §21083.2[i]). During evaluation or mitigative treatment, ground disturbance and construction work could continue on other parts of the project site.

Significance after Mitigation

Implementation of Mitigation Measure 4.5-1 would ensure that any undocumented cultural resources or inadvertent discoveries of cultural resources during construction or ground-disturbing activities would be properly recorded and the historical significance of the resources documented. Therefore, potentially significant impacts resulting from inadvertent damage or destruction of unknown cultural resources during construction would be reduced to a **less-than-significant** level.

Impact 4.5-2: Impacts to undocumented human remains.

Although there is a low potential for human remains to be discovered during ground disturbance for the project, construction activities could potentially uncover or disturb unanticipated discoveries of human remains, including those interred outside of formal cemeteries. This would be a **potentially significant** impact.

Although no human remains have been identified within the project site and the potential for the presence of undocumented human remains is generally considered low due to the relative rarity of undocumented interments as well as the 55-year history of prior disturbance by agricultural activities and the former treatment facility, it is possible that undocumented human remains could be discovered during ground-disturbing activities. If any human remains were unearthed during project construction, the impact would be **potentially significant**.

Mitigation Measure 4.5-2: Impacts to undocumented human remains.

If human remains are discovered during project ground-disturbing activities, all work within a minimum of 50 feet of the discovery site shall halt immediately. The lead agency shall notify the County Coroner, as stipulated in Section 7050.5 of the California Health and Safety Code. The Coroner shall determine whether the remains are Native American and, if so, shall contact the Native American Heritage Commission by telephone within 24 hours. The Commission shall follow the stipulations in Section 5097.98 of the California Public Resources Code, including determination of a most likely descendant. If the Commission is unable to identify a descendant, the descendant is unable to make a recommendation, or the landowner rejects the recommendation, the Commission shall mediate any dispute between the parties. Where such mediation fails to provide measures acceptable to the landowner, the landowner shall reinter the human remains and associated funerary items with appropriate dignity on the property, in a location not subject to further subsurface disturbance.

Significance after Mitigation

Implementation of Mitigation Measure 4.5-2 would ensure that any undocumented or inadvertent discoveries of human remains during construction or ground-disturbing activities would be properly mitigated in accordance with the laws of the State of California. Therefore, potentially significant impacts resulting from inadvertent disturbance of undocumented human remains during construction would be reduced to a **less-than-significant** level.

Impact 4.5-3: Impacts to undocumented paleontological resources.

Due to the known presence of paleontological resources in the region, construction activities in the Riverbank Formation geologic unit have the potential to disturb or destroy newly discovered paleontological resources. This would be a **potentially significant** impact.

No documented paleontological resources have been identified within the project site and based on the prior disturbance in the project site, the relatively shallow depth of planned ground-disturbing activities for the majority of the project, and the limited areal extent of deep trenchless drilling, the potential of encountering paleontological resources within the project site is considered low. Paleontological resources are known in the project vicinity, however, and the Riverbank Formation, which underlies the project site, is considered to have a high sensitivity for the discovery of Pleistocene-age vertebrate fossils. Due to the known presence of such resources in the region, there is a potential that construction activities could expose and/or impact previously undocumented important paleontological resources. This would be a **potentially significant** impact.

Mitigation Measure 4.5-3: Impacts to undocumented paleontological resources.

Prior to construction, the lead agency shall implement sampling of native soil/sediment at trenchless drilling locations to determine the depth of potential paleontological resources. If no paleontological resources are identified, the trenchless drilling may proceed. If fossils or other paleontological resources are encountered during the sampling or construction, all work shall be halted within a 50-foot radius of the find and a

qualified paleontologist shall be contacted to examine the find and evaluate its significance. If the find is deemed to have significant scientific value, the paleontologist and the lead agency shall formulate a plan to either avoid impacts or to continue construction without disturbing the integrity of the find (e.g., by carefully excavating the material containing the resources under the direction of the paleontologist followed by routine conservation, laboratory preparation, and curation). Recommendations determined by the lead agency to be necessary and feasible shall be implemented before construction activities can resume at the place where the paleontological resources were discovered.

Significance after Mitigation

Implementation of Mitigation Measures 4.5-3 would ensure that any inadvertent discoveries of paleontological resources during construction or ground-disturbing activities are properly documented and salvaged. Therefore, potentially significant impacts resulting from inadvertent damage or destruction of unknown paleontological resources would be reduced to a **less-than-significant** level.

Impact 4.5-4: Impacts to undocumented tribal cultural resources.

Subsurface disturbances could potentially destroy or damage as-yet undiscovered tribal cultural resources. Newly discovered cultural resources could be recognized as tribal cultural resources and could be adversely affected during project construction. This impact would be **potentially significant**.

Based on the more than 50-year history of disturbance within the project site—including agriculture and the footprint of the former wastewater treatment facility and various ancillary structures—the project site has a low to low-moderate potential for the discovery of prehistoric, ethnohistoric, or historic archaeological sites that may meet the definition of TCRs. Although no TCRs have been documented in the project site, the project is located in a region where significant cultural resources have been recorded and there remains a potential that undocumented archaeological resources that may meet the TCR definition could be unearthed or otherwise discovered during ground-disturbing and construction activities. Examples of significant archaeological discoveries that may meet the TCR definition would include villages and cemeteries. Due to the possible presence of undocumented TCRs within the project site, construction-related impacts on tribal cultural resources would be **potentially significant**.

Mitigation Measure 4.5-4: Impacts to undocumented tribal cultural resources.

If cultural resources are discovered during project-related construction activities, all ground disturbances within a minimum of 50 feet of the find shall be halted until a qualified professional archaeologist can evaluate the discovery. The archaeologist shall examine the resources, assess their significance, and recommend appropriate procedures to the lead agency to either further investigate or mitigate adverse impacts. If the find is determined by the lead agency in consultation with the Native American tribe traditionally and culturally affiliated with the geographic area of the project site to be a tribal cultural resource and the discovered archaeological resource cannot be avoided, then applicable mitigation measures for the resource shall be discussed with the geographically affiliated tribe. Applicable mitigation measures that also take into account the cultural values and meaning of the discovered tribal cultural resource, including confidentiality if requested by the tribe, shall be completed (e.g., preservation in place, data recovery program pursuant to PRC §21083.2[i]). During evaluation or mitigative treatment, ground disturbance and construction work could continue on other parts of the project site.

Significance after Mitigation

Implementation of Mitigation Measure 4.5-4 would ensure that any undocumented tribal cultural resources or inadvertent discoveries of tribal cultural resources during construction or ground-disturbing activities would be properly recorded and the cultural significance of the resources documented. Therefore, potentially significant impacts resulting from inadvertent damage or destruction of unknown tribal cultural resources during construction would be reduced to a **less-than-significant** level.

4.6 HYDROLOGY AND WATER QUALITY

This section describes the existing hydrologic and water quality setting for the project site, including runoff, storm drainage, flooding, and groundwater. Applicable regulations and policies regarding hydrology and water quality are discussed, and impacts that may result from project implementation are identified. Mitigation measures are recommended to reduce potential impacts, where appropriate.

4.6.1 Environmental Setting

CLIMATE

The project site is located within the Mediterranean subtropical climate zone that is typical of Central California. Winters are typically cool and wet, and summers are typically hot and dry. Annual rainfall averages 24 inches for the City of Lincoln and occurs primarily during late fall and spring (November through April) (City of Lincoln 2008a).

HYDROLOGY

Hydrology

The City of Lincoln contains four major watersheds: Coon Creek, Bunkham Slough, Markham Ravine, and Auburn Ravine. The project site is located within the Markham Ravine Watershed and Markham Ravine lower tributary transverses the site (Exhibit 4.6-1). Markham Ravine drains the central areas of the City, and consists of three tributaries: the northern, central, and lower tributaries. The main tributary is the central tributary of Markham Ravine, passing through the city from the east to the west-southwest. Approximately three square miles of rural and partially developed land are tributary to the main branch, east of State Route 65 (SR 65).

The northern tributary of Markham Ravine, also known as Clay Creek, enters the City of Lincoln, crossing SR 65, at the Foskett Ranch subdivision. This tributary remains in a natural swale and flows west through the Foskett Ranch subdivision. The creek has been channelized along the north side of Venture Parkway, to the intersection of Lakeside Drive. West of this intersection, the creek is piped to a detention basin and then returns to a natural swale at the junction with the central tributary of Markham Ravine (City of Lincoln 2008a). The lower tributary collects runoff from the central and western areas of the city, west of SR 65. This tributary to Markham Ravine has been placed into a pipe system throughout most of the developed area of the city. The pipe daylight to a channel system near the intersection of O Street and 8th Street. From this location the flows are channelized west to Joiner Parkway. West of Joiner Parkway flows return to a natural swale flowing generally west and then northwest, joining the central tributary of Markham Ravine near Nicolaus Road.

Drainage

As discussed above, land within the City drains into four major watersheds: Coon Creek, Bunkham Slough, Markham Ravine, and Auburn Ravine. The entire project site discharges into Markham Ravine lower tributary, which is tributary to the Markham Ravine Watershed. There are four primary drainage sheds within the project site: 1) north of Markham Ravine lower tributary and adjacent Nicolaus Road, 2,3) north of Markham Ravine lower tributary and south of the existing residential subdivision, and 4) south of Markham Ravine lower tributary. Topography for each of the drainage shed areas fall at a relatively flat and constant slope towards Markham Ravine lower tributary near the center of the project site.

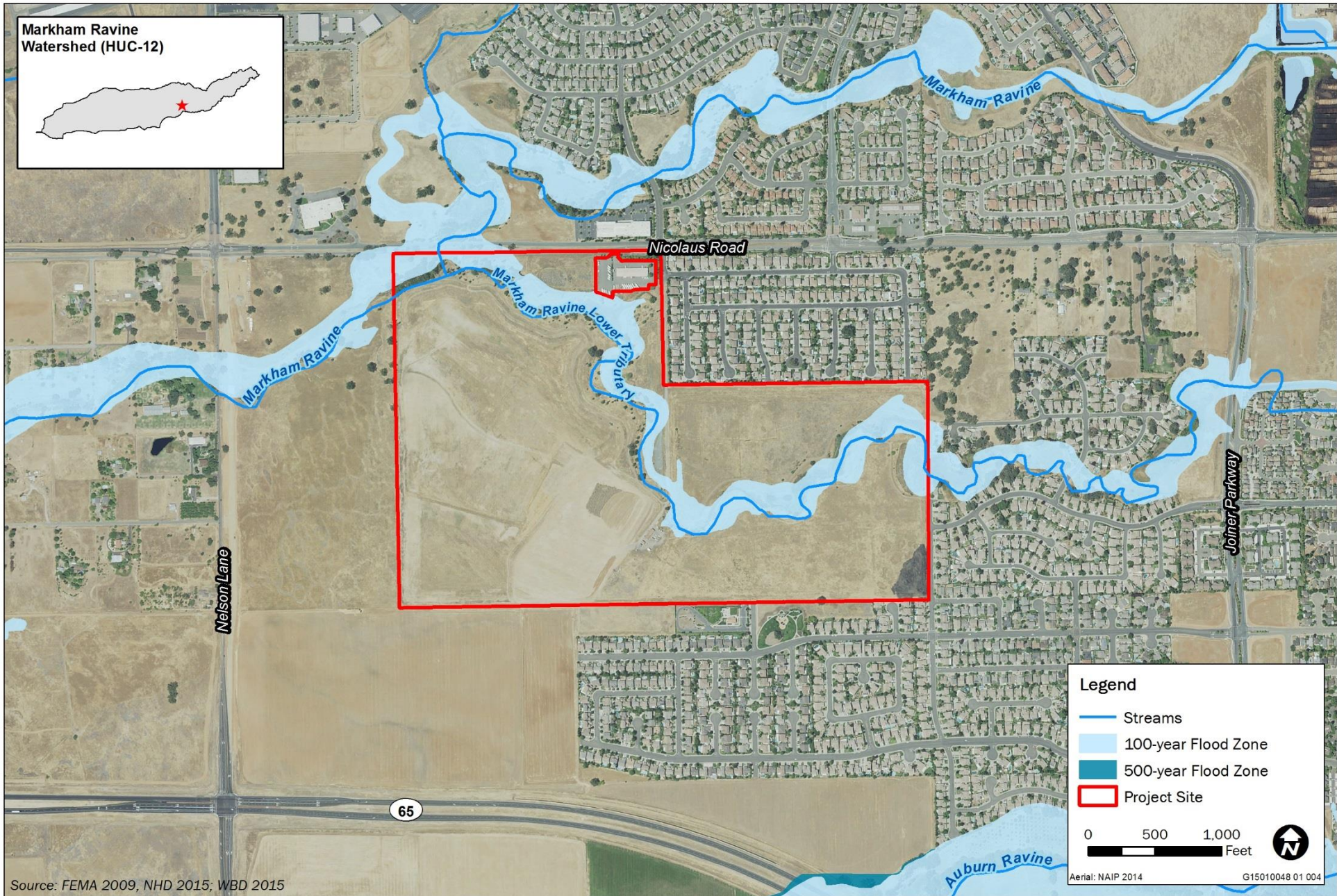


Exhibit 4.6-1

Waterways in Project Vicinity



Elevations within the project site range from approximately 105 feet to 135 feet above mean sea level. Elevations are highest along the eastern boundary of the project site and slope downward towards the confluence of the Markham Ravine and the lower tributary at the northwest corner of the project site. The project site slopes in a southeast to northwest fashion following the channel slope of the Markham Ravine lower tributary. In the project vicinity, both the Markham Ravine and the lower tributary channels are predominantly incised with most storage being contained in wide overbanks (Wood Rodgers 2015).

Flooding

Flooding can occur in the City at any time during the rainy season (November through April). This type of flood results from prolonged, heavy rainfall and is characterized by high peak flows of moderate duration and by a large volume of runoff. Flooding is more severe when prior rainfall has resulted in saturated ground conditions. This is because of the clay soils, as well as the prevalence of an impermeable subsurface throughout most of the Lincoln area, which can result in some areas of standing water and localized flooding.

The Federal Emergency Management Agency (FEMA) has prepared the Flood Insurance Rate Maps (June 8, 1998) for the City of Lincoln. Flood zones identified to occur within the 100-year flood hazard area include Markham Ravine.

West of SR 65, flooding has occurred in the low areas of Nicolaus Road, which is adjacent to the northern boundary of the project site. Flooding also occurs annually at Nelson Lane, which is west of the project site. At the lower tributary of Markham Ravine, 100-year protection is provided from Joiner Park, downstream to the City Limits. Shallow flooding beyond the stream banks is expected in the natural stream areas downstream of Joiner Parkway during flood events (City of Lincoln 2008a).

Both Markham Ravine and the lower tributary have previously been mapped by FEMA. The Flood Insurance Rate Maps show Base Flood Elevations (NAVD88) for Markham Ravine lower tributary ranging from elevation 128.4 at the upstream property boundary to elevation 114.4 at the confluence with Markham Ravine and show elevation 113.4 for Markham Ravine where it is adjacent to the project site. The portions of the project site adjacent to Markham Ravine and the lower tributary are within the 100-year flood hazard area. The remainder of the site is not within a 100-year flood hazard area, and there are no 500-year flood hazard areas within the project site (Exhibit 4.6-1).

GROUNDWATER

The City is located within the north-central portion of the State's Central Valley groundwater basin. This extensive aquifer extends throughout the Central Valley for approximately 400 miles from Red Bluff to Bakersfield and averages 40 miles in width. Overall, this aquifer is comprised of a complex system of smaller groundwater basins that are composed of stratified sand, silt, and clay layers many thousands of feet thick (City of Lincoln 2008a). The project site is located within the North American subbasin of the Sacramento Valley groundwater basin (DWR 2016).

The groundwater basin underlying the City, can be divided into two main saturation zones. The lower zone, or deep aquifer system, includes volcanic deposits of the Mehrten Formation and nonvolcanic sediments of the lone Formation. The upper zone (shallow aquifer system) is comprised of nonvolcanic sediments and limited areas of overlying fluvial and alluvial deposits. The main body of fresh groundwater in within the city ranges in thickness from several hundred feet near the foothills to an estimated 2,000 feet near the Sacramento River. The Mehrten Formation is an important source of good quality fresh water and is estimated to be approximately 100 to 400 feet thick in within the city (City of Lincoln 2008a).

Groundwater wells within the city are typically used for the City's backup water supply system and domestic and agricultural water supplies. California Department of Water Resources (DWR) has been monitoring approximately 60 wells in Placer County since the early 1960s and has determined that water levels generally have declined roughly 2 feet per year on average (City of Lincoln 2008a).

Records from DWR for wells in the vicinity of the project site were reviewed by Wallace Kuhl and measurements taken over the past 15 to 20 years by DWR indicate the groundwater elevation in the project vicinity has varied between approximately 50 to 60 feet below existing site grades (Wallace Kuhl & Associates 2013).

WATER QUALITY

Overall, the quality of water in local streams within the City is good. Water quality from groundwater in the Mehrten Formation, which underlain the city is generally excellent, with low mineral hardness levels. However, reduced water quality is a common problem in shallower groundwater wells and in some areas associated with specific hazardous waste or materials spills (City of Lincoln 2008a). Markham Ravine Watershed is not included on the State's list of "impaired water bodies" under Section 303(d) of the federal Clean Water Act (CWA) (U.S. Environmental Protection Agency [EPA] 2015).

4.6.2 Regulatory Setting

FEDERAL

Clean Water Act

The CWA is the primary federal statute governing the protection of water quality and was established to provide a comprehensive program to protect the nation's surface waters. EPA is the federal agency with primary authority for implementing regulations adopted pursuant to the CWA. The basis of the CWA consists of the federal Water Pollution Prevention and Control Act (Water Pollution Act) passed in 1948. The Water Pollution Act was substantially reorganized and expanded in subsequent amendments passed in 1972 and in 1977, when "Clean Water Act" became its common name. The Water Pollution Act required the EPA to establish nationwide effluent standards on an industry-by-industry basis. The 1972 amendment established the National Pollutant Discharge Elimination System (NPDES) program. As a result of the reauthorization of the CWA in 1987, Sections 402(p) through 405 were added. One of the results of the new sections was the creation of a framework for regulating discharges under the NPDES permit program, which is discussed later in this section.

Under federal law, EPA has published water quality regulations under Volume 40 of the Code of Federal Regulations. Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the United States. As defined by the CWA, water quality standards consist of two elements: (1) designated beneficial uses of the water body in question, and (2) criteria that protect the designated uses. Section 304(a) requires EPA to publish advisory water quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water. Where multiple uses exist, water quality standards must protect the most sensitive use. EPA has designated the State Water Resources Control Board (SWRCB) and its nine regional water quality control boards (RWQCBs) with the authority to identify beneficial uses and adopt applicable water quality objectives. EPA has delegated to the State of California the authority to implement and oversee most of the programs authorized or adopted for CWA compliance through the Porter-Cologne Water Quality Control Act of 1969 (Porter-Cologne Act), described below.

Federal Emergency Management Agency

In 1968, Congress created the National Flood Insurance Program (NFIP) in response to the rising cost of taxpayer funded disaster relief for flood victims and the increasing amount of damage caused by floods. FEMA administers the NFIP to provide subsidized flood insurance to communities that comply with FEMA regulations to limit development in floodplains. FEMA also issues Flood Insurance Rate Maps (FIRMs) that identify which land areas are subject to flooding. These maps provide flood information and identify flood hazard zones in the community. FEMA has established a minimum level of flood protection for new development as the 1-in-100 Annual Exceedance Probability (i.e., 100-year flood event). Participants in the NFIP must satisfy certain mandated floodplain management criteria. The project site is traversed by

Markham Ravine lower tributary, which is designated as a 100-year flood zone area (City of Lincoln 2014) and is susceptible to potential flood hazards (FEMA 1998). The portion of the project site that is traversed by Markham Ravine is located within Zone AE (FEMA 1998), a zone that applies to the 100-year floodplain where base flood elevations, or the water surface elevations associated with the 100-year event, are also available and is susceptible to potential flood hazards. FEMA recently issued new draft FIRMs for the Placer region, including the project site. The new FIRMs are preliminary and are expected to go into effect in 2017 after a public review and appeal period. As water flow and drainage patterns have changed over time, the new maps more accurately reflect the flood risk in Placer County (Placer 2016).

STATE

State Water Resources Control Board

In California, the SWRCB has broad authority over water quality control issues for the state. The SWRCB is responsible for developing statewide water quality policy and exercises the powers delegated to the state by the federal government under the CWA. Other state agencies with jurisdiction over water quality regulation in California include the California Department of Health Services, the California Department of Pesticide Regulation, the California Department of Fish and Wildlife, and the Office of Environmental Health and Hazard Assessment. Regional authority for planning, permitting, and enforcement is delegated to the nine RWQCBs. The regional boards are required to formulate and adopt water quality control plans for all areas in the region and establish water quality objectives in the plans. The Central Valley RWQCB is responsible for water resources in the project vicinity.

On January 20, 2005, the SWRCB adopted the Low Impact Development (LID) Policy, which promotes “sustainability” as a key parameter to be considered during the design and planning process for future development. The sustainability practice promotes LID to benefit water supply and contribute to water quality protection. LID has been a proven approach in other parts of the country and is seen in California as an alternative to conventional stormwater management. It is necessary to incorporate LID into the design of proposed projects to meet the Maximum Extent Practicable standard of the Phase II General Permits (see discussion of NPDES permits, below). LID practices include measures such as reducing impervious surface area, using natural drainage systems, and designing development to correspond to existing terrain.

Porter-Cologne Water Quality Control Act of 1969

The Porter-Cologne Act is California’s statutory authority for the protection of water quality. Under the Porter-Cologne Act, the state must adopt water quality policies, plans, and objectives that protect the state’s waters for the use and enjoyment of the people. The act sets forth the obligations of the SWRCB and RWQCBs to adopt and periodically update basin plans. Basin plans are the regional water quality control plans required by both the CWA and Porter-Cologne Act in which beneficial uses, water quality objectives, and implementation programs are established for each of the nine regions in California.

The Porter-Cologne Act also requires waste dischargers to notify the RWQCBs of their activities through the filing of reports of waste discharge and authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements, NPDES permits, Section 401 water quality certifications, and other approvals. The RWQCBs also have the authority to issue waivers to reports of waste discharge/waste discharge requirements for broad categories of “low threat” discharge activities that have minimal potential for adverse water quality effects when implemented according to prescribed terms and conditions.

National Pollutant Discharge Elimination System Permit System and Waste Discharge Requirements for Construction

The federal NPDES permit program in California has been delegated to the SWRCB and RWQCBs. The goal of the NPDES nonpoint source regulations is to improve the quality of stormwater discharged to receiving waters to the “maximum extent practicable” through the use of best management practices (BMPs). Compliance with the NPDES General Construction Permit requires that any construction activity affecting 1 acre or more obtain the General Construction Activity Storm Water Permit. Permit applicants are required to

submit a notice of intent to the SWRCB and to prepare a stormwater pollution prevention plan (SWPPP), which identifies BMPs that will be implemented to reduce construction effects on receiving water quality. The BMPs include sediment and erosion control measures and other measures to control potential chemical contaminants. Examples of construction BMPs identified in SWPPPs include using temporary mulching, seeding, or other stabilization measures to protect uncovered soils; storing materials and equipment to ensure that spills or leaks cannot enter the storm drain system or surface water; developing and implementing a spill prevention and cleanup plan; installing traps, filters, or other devices at drop inlets to prevent contaminants from entering storm drains; and using barriers, such as straw wattles or silt fencing, to minimize the amount of uncontrolled runoff that could enter drains or surface water.

Construction activities subject to the general construction activity permit include clearing, grading, stockpiling, and excavation. Dischargers are required to eliminate or reduce nonstormwater discharges to storm sewer systems and other waters. The permit also requires dischargers to consider the use of postconstruction permanent BMPs that will remain in service to protect water quality throughout the life of the project. All NPDES permits also have inspection, monitoring, and reporting requirements.

The General Permits also require permittees to develop a Construction Site Storm Water Runoff Control Program and a Post Construction Storm Water Management Program.

State Nondegradation Policy

In 1968, the SWRCB adopted a nondegradation policy aimed at maintaining high quality for waters in California. The nondegradation policy states that the disposal of wastes into state waters shall be regulated to achieve the highest water quality consistent with maximum benefit to the people of the state and to promote the peace, health, safety, and welfare of the people of the state. The policy provides as follows:

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

Central Valley Flood Protection Act

The Central Valley Flood Protection Board (CVFPB) enforces encroachment requirements on streams under their jurisdiction. The California Water Code Title 23, Table 8.1 lists all regulated streams under the jurisdiction of the CVFPB. Markham Ravine, is listed as “Markham Creek” in this table, and only the portion of Markham Ravine within Sutter County is listed. However, DWR's Best Available Maps show Markham Ravine through Lincoln as a regulated stream. Therefore, the project has considered CVFPB's encroachment requirements in design of the project, and whether this waterway is subject to a CVFPB permit would be resolved with CVFPB staff if the project is approved.

Senate Bill 5

In 2007, the State of California passed a series of laws referred to as SB 5 directing DWR to prepare flood maps for the central valley flood system and the State Plan of Flood Control, which includes a system of levees and flood control facilities located in the Central Valley. This legislation also set specific locations within the area affected by the 200-year flood event as the urban level of flood protection (ULOP) for the Central Valley.

SB 5 “requires all cities and counties within the Sacramento-San Joaquin Valley, as defined in California Government Code Sections 65007(h) and (j), to make findings related to an ULOP or the national Federal Emergency Management Agency (FEMA) standard of flood protection before: (1) entering into a development agreement for any property that is located within a flood hazard zone; (2) approving a discretionary permit or other discretionary entitlement, or a ministerial permit that would result in the construction of a new residence, for a project that is located within a flood hazard zone; or (3) approving a tentative map, or a parcel map for

which a tentative map was not required, for any subdivision that is located within a flood hazard zone.” The City of Lincoln completed its General Plan update in June 2016 to meet the requirements of SB 5.

Sustainable Groundwater Management Act of 2014

The Sustainable Groundwater Management Act of 2014 (SGMA)¹ became law on January 1, 2015, and applies to all groundwater basins in the state (Water Code Section 10720.3). By enacting the SGMA, the legislature intended to provide local agencies with the authority and the technical and financial assistance necessary to sustainably manage groundwater within their jurisdiction (Water Code Section 10720.1).

Pursuant to the SGMA, any local agency that has water supply, water management, or land use responsibilities within a groundwater basin may elect to be a “groundwater sustainability agency” for that basin (Water Code Section 10723). The groundwater sustainability agency for the North American subbasin is the Sacramento Groundwater Authority.

The SGMA also requires DWR to categorize each groundwater basin in the state as high-, medium-, low-, or very low priority (Water Code Sections 10720.7, 10722.4). All basins designated as high- or medium-priority basins must be managed by a groundwater sustainability agency under a groundwater sustainability plan that complies with Water Code section 10727 et seq. If required to be prepared, groundwater sustainability plans must be prepared by January 31, 2020 for all high- and medium-priority basins that are subject to critical conditions of overdraft, as determined by DWR, or by January 31, 2022 for all other high- and medium-priority basins. In lieu of preparation of a groundwater sustainability plan, a local agency may submit an alternative that complies with the SGMA no later than January 1, 2017 (Water Code Section 10733.6).

On December 15, 2014, DWR announced its official “initial prioritization” of the state’s groundwater basins for purposes of complying with the SGMA and this priority list became effective on January 1, 2015 (DWR 2014). DWR has ranked the Sacramento Valley Groundwater Basin as “high priority.”

LOCAL

Placer County Stormwater Management Manual

The Placer County Flood Control and Water Conservation District developed the Stormwater Management Manual (SWMM) that presents policies, guidelines, and specific criteria for the development and management of facilities and infrastructure for stormwater management, in addition to other natural resource management issues. The manual was revised in 1992, 1994, and in 1997. Although the project is within the city limits, policies in the *City of Lincoln General Plan* and City design guidelines require consistency with the SWMM. Policies included in the SWMM that are relevant to the project include the following:

II. Goals and Policies

II.C.1.a Design Criteria. Storm drainage planning and design in western Placer County shall adhere to the criteria presented in this manual. However, none of the criteria or guidelines are intended to substitute for the sound application of fundamental engineering or scientific principles or to conflict with stated goals and policies.

VI. Drainage Systems

VI.B.2 Design storms. All new development shall be planned and designed so that no damages occur to structures or improvements during the 100-year event and no inundation of private property occurs during the 10-year event.

VI.B.2.a Local Drainage. The 10-year event is the minimum design storm for new developments in all drainages, and all dedicated drainage facilities will be designed for this event.

¹ The SGMA is comprised of three separate bills: Senate Bill 1168, Senate Bill 1319, and Assembly Bill 1739. All three were signed into law by the Governor on September 16, 2014.

VII. Storage Facilities

VII.C.3 Avoiding Detrimental Effects. No storage facility shall worsen conditions downstream. Any storage facility, especially a detention basin, has the potential for creating worse conditions downstream by altering the timing of peak flows in the stream and its tributaries. In order to avoid detrimental effects, the following alternative measures are suggested.

- ▲ a hydrologic study of the watershed in which the basin would be sited. The downstream limit of the study would be the point beyond which changes in peak flows would not be measurable. Where they exist, watershed models supported by the local jurisdiction or the District should be used.
- ▲ construction of storage basins which limit outflows to the 2-year pre-development peak flow rate.
- ▲ construction of in-stream detention basins which result in reasonably the same outflow hydrographs as previously existed for the 2-, 10-, 25-, and 100-year events.

VII.D.1.a Uncertainty in Pre-Development Flows. When storage is to be used to mitigate downstream impacts due to increased flows generated by development of a site, the objective flow shall be taken as the estimated pre-development peak flow rate less 10% of the difference between the estimated pre-development and post-development peak flow rates from the site for all standard design storms ranging in frequency from the 2-year and up to and including 100-year. In no case, however, shall the objective flow be less than 90 percent of the estimated pre-development flow. Figure 7-1 [page VII-4 in the SWMM] presents this criterion graphically.

West Placer Stormwater Quality Design Manual

The West Placer Stormwater Quality Design Manual is a joint effort between Placer County and the cities of Roseville, Lincoln, Loomis, and Auburn. The goal of the Design Manual is to provide standards that both conform to the mandates of the 2013 NPDES Municipal Permit (MS4-General Permit No. CAS0000004) and achieve the objectives of the Placer County Conservation Plan.

City of Lincoln General Plan

Policies included in the *City of Lincoln General Plan* (City of Lincoln 2008b; City of Lincoln 2016) that are relevant to the project including the following:

- ▲ **Policy PFS-4.2** Development Requirements. The City shall encourage project designs that minimize drainage concentrations and impervious coverage and avoid floodplain areas and, where feasible, be designed to provide a natural water course appearance.
- ▲ **Policy PFS-4.6** Pre-project Conditions. The City will require new development to provide storm-water detention sufficient to limit outflow per Figure 7-1 of the City's Stormwater Management Manual (February 1994), or as revised. Master Drainage Plans shall be designed to require new development to provide, or contribute towards, stormwater detention to reduce postdevelopment peak flow from a 100-year event to pre-development flow rate less 10 percent of the difference between the estimated pre-development and the post-development unmitigated peak flow rates. The Master Drainage Plan shall identify appropriate locations to achieve such postdevelopment flows. This criterion is principally designed to address the 100-year event with appropriate consideration given for the feasibility of mitigating 2-year and 10-year events.
- ▲ **Policy PFS-4.7** Stormwater Runoff. The City shall require new development to provide stormwater-retention sufficient for the incremental runoff from an eight-day 100-year storm.
- ▲ **Policy PFS-4.8** Discharge of Urban Pollutants. The City shall require appropriate runoff control measures as part of future development proposals to minimize discharge of urban pollutants (such as oil and grease) into area drainages.

- ▲ **Policy PFS-4.9** 200-year Floodplain. The City will discourage development or major fill or structural improvements (except for flood control purposes) within the 200 -year floodplain as shown on Figure 8.4 of the Health and Safety Element Background Report. Requests for fill and improvements within the floodplain may be approved by the City based upon a detailed hydraulic volumetric analysis prepared to evaluate impacts and provide for any mitigation measures to be provided as a part of the development to the satisfaction of the City Engineer / Public Works Director. Recreational activities that do not conflict with habitat uses may be permitted within the floodplain.
- ▲ **Policy PFS-4.10** Erosion Control Measures. The City shall require adequate provision of erosion control measures as part of new development to minimize sedimentation of streams and drainage channels.
- ▲ **Policy PFS-4.11** Stormwater Management Manual. The City shall require drainage designs and practices to be in accordance with the Stormwater Management manual of the Placer County Flood Control District unless alternative methods are approved by the City Engineer.
- ▲ **Policy OSC-4.1** Identify and Protect Aquifers. The City will protect local aquifers and water recharge areas.
- ▲ **Policy OSC-4.3** Protect Surface Water and Groundwater. The City shall ensure that new development projects do not degrade surface water and groundwater.
- ▲ **Policy OSC-4.4** Protection and Management of Flood Plains. The City shall encourage the protection of 100-year floodplains and where appropriate, obtain public easements for purposes of flood protection, public safety, wildlife preservation, groundwater recharge, access and recreation.
- ▲ **Policy OSC-4.5** Use of Reclaimed Water. The City shall encourage the use of reclaimed water, in place of treated potable water for landscaping and other suitable applications.
- ▲ **Policy OSC-4.6** Best Management Practices. The City shall continue to require the use of feasible and practical BMPs to protect surface water and groundwater from the adverse effects of construction activities and urban runoff. Additionally, The City shall require, as part of its Storm Water NPDES Permit and ordinances, to implement the SWPPP during construction activities for any improvement projects, new development and redevelopment projects for reducing pollutants to the maximum extent practicable.
- ▲ **Policy HS-6.5** New Residential Construction. The City shall require new residential construction to have its lowest habitable floor elevated above the base flood level elevation, determined by FEMA standards, and built in accordance with City Ordinances. Note that the requirements of this policy are in addition to the requirements in Policy HS-6.4.
- ▲ **Policy HS-6.11** Stream Channels. The City shall preserve the natural function of and prohibit development along stream channels that would reduce the stream capacity, increase erosion, or cause deterioration of the channel in order to maintain existing floodplain conveyance and storage capacity and limit flooding.

City of Lincoln Storm Water Management Plan

Discharges of urban runoff in the City are regulated under NPDES Phase II regulations applicable to smaller dischargers. The City developed a Storm Water Management Plan (SWMP) describing the City's program, which is based on the City of Sacramento's Stormwater Quality Guidance Manual. Ordinance No. 826B (adopted October 23, 2007) added Chapter 8.60 to the City's Municipal Code, implementing the SWMP requirements.

City of Lincoln Design Criteria & Procedures Manual

The Design Criteria & Procedures Manual provides minimum standards for improvements within the City and sets guidelines for all private development involving drainage, grading, and related improvements (City of Lincoln 2004).

City of Lincoln Floodplain Ordinance

The City floodplain ordinance requires the City Engineer or the City Council to approve any work within the mapped floodplain areas of the city. This includes any bridgework, culverts, roadways, grading of fill and/or cut areas, plantings, and installation of structures (e.g., park benches, fences) (City of Lincoln 2008a). In addition, any project that results in encroachment within an adopted regulatory floodway would require certification by a registered civil engineer that the proposed encroachment would not result in any increase in flood levels during the occurrence of the base flood discharge. On the new FIRMs, both Markham Ravine and the Markham Ravine Tributary are designated as Regulated Floodways (Placer County 2016).

4.6.3 Environmental Impacts and Mitigation Measures

ANALYSIS METHODOLOGY

Evaluation of potential hydrologic and water quality impacts was based on a review of existing information from previously completed documents that address water resources on the project site and surrounding area, including the *City of Lincoln General Plan (2008b)*, *City of Lincoln General Plan Background Report (2008a)*, *Drainage Study for Independence at Lincoln (Wood Rodgers 2015)*, and *Preliminary Geotechnical Engineering Report Former Lincoln WWTP Property (Wallace Kuhl & Associates 2013)*. The information obtained from these sources was reviewed and summarized to establish existing conditions and to identify potential environmental effects, based on the standards of significance presented in this section. In determining the level of significance, the analysis assumes that the project would comply with relevant federal, state, and local ordinances and regulations (see Section 4.6.2, “Regulatory Setting”).

Water quality impacts associated with temporary construction activities were assessed in a qualitative manner. The potential short-term, construction-related effects of grading and land disturbance were assessed based on the probability of seasonal exposure to rainfall and runoff, routes of exposure for contaminants to enter surface water, and the magnitude and duration of construction relative to the potential water quality parameters expected to be affected by the activity.

Because the City of Lincoln is the lead agency for the project, project implementation would be required to comply as a standard condition with the applicable City Code sections, stormwater management programs, and regulations. In particular, project construction activities would be conducted in compliance with the City’s SWMP, Placer County’s SWMM, and the SWRCB NPDES Stormwater General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities. The General Construction NPDES Permit requires the preparation and implementation of a SWPPP that outlines the temporary construction-related BMPs to prevent and minimize erosion, sedimentation, and discharge of other construction-related contaminants, as well as permanent post-construction BMPs to minimize adverse long-term stormwater-related water quality effects.

THRESHOLDS OF SIGNIFICANCE

The project would cause a significant impact on hydrology and water quality if the project would:

- ▲ violate any water quality standards or waste discharge requirements;
- ▲ substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level;
- ▲ substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial on- or offsite erosion or siltation;

- ▲ substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in on- or offsite flooding;
- ▲ create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- ▲ otherwise substantially degrade water quality;
- ▲ place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or FIRM or other flood hazard delineation map;
- ▲ place within a 100-year flood hazard area structures that would impede or redirect flood flows;
- ▲ expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- ▲ result in inundation by seiche, tsunami, or mudflow.

ISSUES OR POTENTIAL IMPACTS NOT DISCUSSED FURTHER

The project site is not located in an area subject to dam failure (City of Lincoln 2008b). In addition, according to the FEMA FIRM for the project vicinity, only the portion of the project site adjacent to Markham Ravine Lower Tributary is considered 100-year floodplain. No housing would be constructed within the floodplain. Therefore, project implementation would not place housing in a 100-year flood hazard area or place structures in a 100-year flood hazard area that would redirect flood flows. Furthermore, the project would not expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam. Thus, these issues are not discussed further in this EIR. A new bridge over Markham Ravine is the only structure that would be constructed within the 100-year floodplain. Potential impacts associated with this structure, including those associated with the FEMA Regulatory Floodway are discussed below under Impact 4.6-5, Flood Hazards.

The project would not construct any structures within FEMA Zone A or Zone “Shaded X”, areas of shallow flooding where new development is not required to meet the urban level of flood protection (200-year return period). Therefore, SB 5 would not apply to the project site and this issue is not discussed further.

Because of the distance of the project site from the nearest open waterbody, the Pacific Ocean (more than 100 miles to the west), the project would not be affected by inundation as a result of seiche or tsunami. In addition, the project site would be graded as part of the project and there would be no steep areas that would have the potential to generate mudflows during operation. Therefore, these issues are not addressed further in this EIR.

IMPACT ANALYSIS

Impact 4.6-1: Short-term construction-related water quality degradation.

Project construction activities would involve extensive grading and movement of soil, which could result in erosion and sedimentation, and discharge of other nonpoint source pollutants in onsite stormwater that could then drain to offsite areas and degrade local water quality. To avoid or minimize the potential for adverse construction-related effects on water quality, the project would be required to comply with Central Valley RWQCB and City and County regulations that protect water quality and minimize erosion. However, because construction activities have the potential for soil erosion that could affect water quality, this impact would be **potentially significant**.

Project construction would involve extensive ground-disturbing activities over approximately 145 acres, including excavation and relocation of soil onsite, and backfilling and compaction of soils. Construction is proposed to occur in two phases between 2017 and 2020. Depending on scheduling, construction could potentially occur during multiple rainy seasons (October 1 through April 30). Because of the increase in exposed surfaces and the earth-moving activities, the potential for erosion and sedimentation is higher during the rainy season.

Construction activities would create the potential for soil erosion and sedimentation of stormwater drainage systems, both within and downstream of the project site. The construction process may also result in accidental release of other pollutants to surface waters, including oil and gas, chemical substances used during construction, waste concrete, and wash water. Many construction-related wastes have the potential to degrade existing water quality by altering the dissolved-oxygen content, temperature, pH, suspended-sediment and turbidity levels, or nutrient content, or by causing toxic effects in the aquatic environment. Proposed construction activities, if not properly implemented, could violate water quality standards or cause direct harm to aquatic organisms.

The project site is generally flat and does not have steep slopes; however, intense rainfall and associated stormwater runoff could result in short periods of sheet erosion within areas of exposed or stockpiled soils. If uncontrolled, these soil materials could cause sedimentation and blockage of on-site or off-site waterways. Further, the compaction of soils by heavy equipment may reduce the infiltration capacity of soils and increase the potential for runoff and erosion. Stormwater runoff could also wash construction materials into receiving waterbodies and negatively impact water quality. Non-stormwater discharges could result from activities such as discharge or accidental spills of hazardous substances such as fuels, oils, concrete, paints, solvents, cleaners, or other construction materials. This erosion and runoff has the potential to degrade water quality, which would cause the project to be inconsistent with the *City of Lincoln General Plan Policies* PFS-4.8 Discharge of Urban Pollutants, PFS-4.10 Erosion Control Measures, OSC-4.3 Protect Surface Water and Groundwater, and OSC-4.6 Best Management Practices described above. Therefore, this impact would be **potentially significant**.

Mitigation Measure 4.6-1: Short-term construction-related water quality degradation.

The applicant shall prepare a SWPPP, which must identify BMPs that will protect water quality from polluted stormwater runoff. These BMPs may include:

- ▲ **Desilting basin and sediment trap:** Construction of temporary basin designed to remove sediment from runoff would prevent constituents from reaching existing on- and offsite drainages by allowing sediment to settle before discharging water to natural drainages.
- ▲ **Erosion control blankets/mats, geotextiles, plastic covers:** These erosion control methods would be used on flat or sloped surfaces to keep soil in place and can be used to cover disturbed soil to prevent runoff.
- ▲ **Gravel/sandbag barrier:** A temporary sediment barrier could be constructed using gravel or sand filled bags to prevent sediment from disturbed areas from reaching existing drainages by reducing the volume of sheet flows.
- ▲ **Hydraulic, straw, and wood mulch:** The use of these various mulches temporarily stabilizes soil on surfaces with little or no slope.
- ▲ **Preservation of existing vegetation:** Preserving the existing vegetation to the maximum extent possible provides protection of exposed surfaces from erosion and can keep sediment in place. Sensitive areas defined in Section 4.4, "Biological Resources," would be clearly indicated and protected during and after construction.
- ▲ **Runoff control BMPs:** These measures include grading surfaces to control sheet flow, barriers or berms that force sheet flows around protected areas, and stormwater conveyances such as channels, drains, and

swales. These practices and features collect runoff and redirect it to prevent contamination to surface waters. Calculations would be made for anticipated runoff, and the stormwater conveyances will be constructed, designed, and located to accommodate these flows.

- ▲ **Scheduling and planning:** Appropriate scheduling and planning provide ways to minimize disturbed areas, which reduces the amount of activity in the area that requires protection and minimizes the duration of exposure of disturbed soils to erosion.
- ▲ **Stabilized construction entrance/exit:** A graveled area or pad located at points where vehicles enter and leave a construction site can be built. This BMP provides a buffer area where vehicles can drop their mud and sediment to avoid transporting it onto public roads, to control erosion from surface runoff and to help control dust.
- ▲ **Storm drain inlet protection:** Protection consists of devices and procedures that detain or filter sediment from runoff, thereby preventing them from reaching drainage systems that would be used post-construction, as well as surface waters.

In addition to preparing a SWPPP, the project applicant shall demonstrate its compliance with the City of Lincoln's SWMP and Design Criteria & Procedures Manual, and Placer County's SMM.

Significance after Mitigation

Implementation of Mitigation Measure HYDRO--1 would reduce construction-related water quality impacts by requiring the project applicant to incorporate appropriate BMPs during construction to prevent water quality degradation. Adequate surface drainage control would be designed by the project civil engineer in accordance with the latest applicable edition of the California Building Code. All slopes would have appropriate drainage and vegetation measures to minimize erosion of soils. In addition, the project will be required to fully comply with the City of Lincoln SWMP and Placer County's SWMM and implementation of BMPs. With adherence to existing requirements, the project would be consistent with the General Plan Policies PFS-4.8, PFS-4.10, OSC-4.3, and OSC-4.6 because the project would minimize discharge of urban pollutants into area drainages, implement erosion control measures and BMPs, and protect surface water and groundwater. Impacts related to water quality degradation as a result of soil erosion would be reduced to a **less-than-significant** level.

Impact 4.6-2: Impacts to stormwater drainage systems.

The project would add additional impervious surfaces at the project site, which would increase surface runoff on an ongoing basis. This increase could result in an increase in both the total volume and the peak discharge rate of stormwater runoff; however, the drainage study conducted for the project concluded that post-project peak runoff and water quality volume would be reduced to pre-project conditions through the use of detention basins. Therefore, this impact would be **less than significant**.

The site is currently fallow land that was the previous site of the City of Lincoln wastewater treatment facility, and construction of the project would develop approximately 97 acres of the 159-acre site. Therefore, the project would substantially increase the amount of impervious surfaces onsite. However, a drainage study was completed in 2015 for the project to evaluate and confirm sizing of onsite detention and conduit facilities (Wood Rodgers 2015). To accommodate the increase in impervious surfaces, the project would involve construction of a drainage conveyance system with three detention basins: North Basin, Central Basin, and South Basin. The basins would be 4.4 acres, 0.3 acre, and 1.4 acres, respectively. The onsite drainage system was designed in conformance with Central Valley RWQCB requirements, the Placer County SWMM, and the City of Lincoln's SWMP. LID methods to maintain pre-project runoff levels incorporated into the project design include limiting impervious coverage to 54 percent of the site, providing an open space corridor with parks adjacent to the open space, using the same net collection locations for drainage as in pre-project conditions, and integrating detention facilities into the site design. (Wood Rodgers 2015).

The post-project peak runoff and water quality volume would be managed through the use of three onsite detention basins to collect stormwater before its discharge into Markham Ravine and the Markham Ravine Lower Tributary. A comparison of peak discharge rates at different outfall locations was modelled and verified that runoff leaving the project would not exceed pre-project flow rates (Wood Rogers 2015:26-27).

Table 4.6- 1 shows the comparison of pre- and post-project flow rate in the 2-year 24-hour storm event at each proposed outfall location.

Proposed Drainage Management Areas	Proposed Basin Names	Pre-Project 2-Year 24 Hour (cfs)	Post-Project 2-Year 24 Hour (cfs)
DMA 1	Central Basin	0.49	0.44
DMA 2	South Basin	1.70	1.70
DMA 3	North Basin	5.80	4.33

The project's drainage system would be designed to appropriately accommodate the stormwater runoff generated from the project site to maintain pre-project conditions. In addition, Markham Ravine lower tributary, which is the primary drainage onsite, would not be disturbed by the project. The drainage study concluded that the post-project peak runoff and water quality volume would be reduced to pre-project levels through the use of detention basins before discharging into Markham Ravine and the lower tributary. The onsite drainage would be consistent with General Plan Policies PFS-4.2, PFS-4.6, PFS-4.7, PFS-4.11, and OSC-4.1 Identify and Protect Aquifers because it would be designed to minimize drainage concentrations and impervious coverage, would provide stormwater detention sufficient to limit outflow and provide retention sufficient for incremental runoff from an eight-day 100-year storm, and would be designed in accordance with the SWMM.

With implementation of the project's drainage plan, the project would not substantially increase the rate or amount of surface runoff in a manner that would result in on- or offsite flooding. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 4.6-3: Long-term water quality degradation.

The conversion of undeveloped land to urban uses would alter the types, quantities, and timing of contaminant discharges in stormwater runoff. Overall, the potential for the project to cause or contribute to long-term discharges of urban contaminants (e.g., oil and grease, trace metals and organics, trash) into the stormwater drainage system could increase compared with existing conditions if the system is not properly designed. However, the project would comply with federal, State, City, and County stormwater guidelines. Therefore, this impact would be **less than significant**.

The project would alter land uses at the project site, which could potentially increase the level of urban contaminants discharged into the stormwater drainage system. Chapter 3, "Project Description," provides a description of the amount and type of development proposed for the project site. The increase in proposed development has the potential to increase the pollutant load of stormwater discharges as a result of proposed land uses if the system is not properly designed. Anticipated pollutants associated with the project include trash, debris, heavy metals, and hydrocarbons from roads and driveways. Potential pollutants could also include sediment from pervious areas that would not be landscaped, pesticides from potential pest control activities, nutrients, fertilizers, oxygen-demanding substances from landscaped areas, and organic compounds from uncovered driveways and roadways.

There is potential for development of the project site to cause or contribute to a long-term increase in discharges of urban contaminants into the stormwater drainage system compared to existing conditions. In accordance with Central Valley RWQCB compliance guidelines, the Placer County SWMM, the West Placer Stormwater Quality Design Manual, and the City of Lincoln's SWMP, the applicant has incorporated into the project design separated sidewalks with tree plantings, disconnected downspouts on all residential lots, and a minimum footprint of infiltration media (engineered fill) at each of the detention basins to filter the water quality runoff volume (Wood Rodgers 2015). In accordance with federal, State, and City and County stormwater management regulations, new construction and significant redevelopment must maintain pre-project hydrology and incorporate proper pollutant source controls, minimize pollutant exposure outdoors, and treat stormwater runoff through proper BMPs when source control or exposure protection are insufficient for reducing runoff pollutant loads. The project would minimize long-term water quality degradation consistent with General Plan Policies PFS-4.8, PFS-4.10, and OSC-4.6 by implementing erosion control measures and BMPs (such as inlet filters, catchment basin filters, etc.) as part of the City's standard conditions of approval to minimize discharge of urban pollutants. The project would also be consistent with General Plan Policies PFS-4.11, OSC-4.3, and HS-6.11 by designing the project consistent with the SWMM and West Placer Stormwater Quality Design Manual, ensuring the project would not degrade surface or groundwater, and prohibiting development along stream channels that would increase erosion or cause deterioration of the channel. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 4.6-4: Depletion of groundwater or interference with groundwater recharge.

The project would be served by the City's municipal water system. In addition, the water features onsite would remain undisturbed and a significant portion of the site would remain as open space that would continue to allow infiltration. Therefore, the project would not result in the substantial depletion of groundwater or interference with groundwater recharge and this impact would be **less than significant**.

A 1.5-acre lot within the southwest corner of the project site (i.e., within Lot 4) would be deeded to the City for construction of a domestic groundwater well. A well may be constructed on the lot by the City in the future, but is otherwise unrelated to the project. The well would expand the City's existing groundwater system, and construction and operation of this well is not included as part of the project, would not serve the project, and would be permitted separately. This lot would be developed with houses (accounted for in the total number of houses analyzed) if the City elects not to construct a groundwater well in the future. No groundwater pumping is associated with the project. Potable and non-potable water use for the project would be provided by the City's municipal water system (see Section 4.8, "Utilities, Service Systems, and Energy," for a discussion of the project's impact on water supply). The City's municipal water supply is primarily surface water, and groundwater wells within the City are typically only used as a backup water supply source.

Project construction would add additional impervious surfaces to the project site (see Impact 4.6-2); however, approximately 46 acres of the site would remain as open space that would allow infiltration to underlying groundwater. In addition, Markham Ravine lower tributary would not be disturbed as part of the project, and three detention basins would be constructed onsite. These water features would continue to contribute to groundwater recharge following construction of the project. Furthermore, the project is not anticipated to significantly affect groundwater quality because sufficient stormwater infrastructure would be constructed as part of project to detain and filter stormwater runoff and prevent long-term water quality degradation.

Therefore, project construction and operation would not substantially deplete or interfere with groundwater supply or quality. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 4.6-5: Flood hazards.

The project site is traversed by Markham Ravine lower tributary, which is a designated FEMA 100-year flood zone area. In addition, the preliminary FIRMs for the Placer region currently designate both Markham Ravine and the Markham Ravine Tributary as Regulated Floodways (Placer County 2016). While no housing is proposed within a 100-year flood zone area, a new culvert and bridge is proposed within the Markham Ravine 100-year flood zone. However, the bridge would be designed to comply with applicable City and County flood hazard design requirements, including the City Floodplain Ordinance. Therefore, the project would not result in flood hazards and this impact would be **less than significant**.

FEMA administers the NFIP and delineates areas subject to flood hazards on FIRMs for each community participating in the NFIP. The FIRMs show the areas subject to inundation by a flood that has a one percent chance or greater of being equaled or exceeded in any given year. This type of flood is referred to as the 100-year or base flood. Areas on FIRMs are divided into geographic areas, or zones, that FEMA has defined according to varying levels of flood risk. The portion of the project site that is traversed by Markham Ravine lower tributary is located within Zone AE (FEMA 1998), a zone that applies to the 100-year floodplain where base flood elevations, or the water surface elevations associated with the 100-year event, are also available and is susceptible to potential flood hazards. Areas with a 1-in-200 Annual Exceedance Probability are designated as being within the 200-year flood zone. As discussed above, FEMA recently issued preliminary FIRMs for the Placer region, including the project site. The new FIRMs designate both Markham Ravine and the Markham Ravine Tributary as Regulated Floodways (Placer 2016). As described above, CVFPB enforces encroachment requirements on streams under their jurisdiction, and portions of Markham Ravine (although not in the project vicinity) may be under the jurisdiction of CVFPB. CVFPB design criteria require structures to be designed for a 200-year flood event.

No housing is proposed within the designated 100-year flood zone. Therefore, no impacts related to exposure of people or housing to flood hazards would occur. However, the new roadway connection to Nicolaus Road that would serve as the main community entry drive would require a bridge across Markham Ravine within this flood zone. This roadway connection would include installation of new culverts, a bridge soffit on the top, and concrete abutments. The concrete abutments for both the northern and southern creek crossings would occur outside of the creek corridor.

As described in the project's drainage study, the bridge would be constructed in accordance with the City floodplain ordinance, which requires the City Engineer or the City Council to approve any work within the mapped floodplain areas of the City and requires certification by a registered civil engineer that the proposed encroachment will not result in any increase in flood levels during the occurrence of the base flood discharge. In addition, because portions of Markham Ravine may be under the jurisdiction of CVFPB, the proposed bridge would incorporate the design requirements of CVFPB encroachment permits, should CVFPB's jurisdiction expand to the project site in the future. CVFPB requirements include designing bridges to maintain three feet of freeboard to the lowest bridge soffit elevations for the 200-year flood event. Therefore, the hydrology and hydraulics analysis' for the bridge were adapted for 200-year flood levels. Compliance with these requirements would ensure that the project would not impede or redirect flood flows, cause flooding downstream, or expose people or structures to a significant risk of loss, injury, or death involving flooding because the bridge would be designed to withstand a 200-year flood event. The project would minimize flood hazards consistent with General Plan Policies PFS-4.2, OSC-4.4, HS-6.5, and HS-6.11 by avoiding floodplain areas to the extent feasible, requiring new residential development to have the lowest habitable floor elevated above the base flood elevation, ensuring that development along stream channels does not reduce the stream capacity or cause deterioration of the channel. In addition, a detailed hydraulic volumetric analysis for the new bridge would be prepared and reviewed and approved by the City Engineer consistent with Policy PFS-4.9.

Therefore, the project would not expose people or structures to a significant risk of loss, injury, or death involving flooding. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

4.7 NOISE

This chapter includes definitions of common noise descriptors; summaries of applicable noise regulations, acoustic fundamentals, and existing ambient noise conditions; and an analysis of potential short- and long-term noise impacts associated with implementation of the project.

4.7.1 Common Noise Descriptors

The intensity of environmental noise fluctuates over time, and several different descriptors of time-averaged noise levels are used. The selection of a proper noise descriptor for a specific source depends on the spatial and temporal distribution, duration, and fluctuation of both the noise source and the environment. The noise descriptors most often used in relation to the environment are defined below (California Department of Transportation [Caltrans] 2009).

- ▲ Decibel (dB): a sound level expressed in decibels which is the logarithmic ratio of two like pressure quantities, with one pressure quantity being a reference sound pressure of 20 micropascals.
- ▲ A-weighted decibel (dBA): the frequency-response adjustment of a sound level meter that conditions the output signal to approximate human hearing response.
- ▲ Equivalent continuous sound level (L_{eq}): the equivalent steady-state sound level in a stated period of time that would contain the same acoustic energy as the time-varying sound level during the same period (i.e., average noise level).
- ▲ Percentile-exceeded sound level (L_{xx}): L_{xx} represents the sound level exceeded for a given percentage of a specified period (e.g., L_{10} is the sound level exceeded 10 percent of the time, and L_{90} is the sound level exceeded 90 percent of the time).
- ▲ Maximum sound level (L_{max}): the highest instantaneous noise level during a specified time period.
- ▲ Minimum sound level (L_{min}): the lowest instantaneous noise level during a specified time period.
- ▲ Day-night sound level (L_{dn}): the 24-hour L_{eq} with a 10-dBA penalty applied during the hours from 10 p.m. to 7 a.m., which are typically reserved for sleeping.
- ▲ Community noise equivalent level (CNEL): Similar to L_{dn} , CNEL is the energy average of the A-weighted sound levels occurring over a 24-hour period, with a 10-dB penalty applied to sound levels occurring between 10 p.m. and 7 a.m. and a 5-dB penalty applied to sound levels occurring during evening hours between 7 p.m. and 10 p.m.
- ▲ Single-event noise levels (SEL): A receiver's cumulative noise exposure from a single impulsive-noise event, which is defined as an acoustical event of short duration and which involves a change in sound pressure above some reference value.

4.7.2 Sound Properties

A sound wave is initiated in a medium by a vibrating object (e.g., vocal chords, the string of a guitar, the diaphragm of a radio speaker). The wave consists of minute variations in pressure, oscillating above and below the ambient atmospheric pressure. The number of pressure variation cycles occurring per second is referred to as the frequency of the sound wave and is expressed in hertz.

To simplify expression of sound pressure fluctuations, the decibel (dB scale was introduced. The use of the decibel is a convenient way to address the million-fold range of sound pressures to which the human ear is sensitive. A decibel is logarithmic; it does not follow normal algebraic methods and cannot be directly summed. For example, a 65 dBA source of sound, such as a truck, when joined by another 65 dBA source results in a sound amplitude of 68 dBA, not 130 dBA (i.e., doubling the source strength increases the sound pressure by 3 dBA). A sound level increase of 10 dBA corresponds to 10 times the acoustical energy, and an increase of 20 dBA equates to a 100-fold increase in acoustical energy.

Noise can be generated by a number of sources, including mobile sources (i.e., transportation) such as automobiles, trucks, and airplanes and stationary sources (i.e., non-transportation) such as construction sites, machinery, and commercial and industrial operations. As acoustic energy spreads through the atmosphere from the source to the receiver, noise levels attenuate (i.e., decrease) depending on geometric spreading (the initial pressure difference is distributed across an increasing surface area which reduces the energy), ground absorption characteristics, atmospheric conditions, and the presence of physical barriers. For short distances the ground effect is important; hard sites (characterized by asphalt, concrete, or hard packed earth) attenuate noise less than soft sites (loose soil or vegetated ground cover). Noise generated from mobile sources generally attenuates at a rate of 4.5 dBA per doubling of distance for soft sites, and 3 dBA per doubling of distance where hard ground surfaces exist between the transportation source and receivers. Stationary noise sources spread with more spherical dispersion patterns that attenuate at a rate of 6 dBA (for hard sites) to 7.5 dBA (for soft sites) per doubling of distance.

Atmospheric conditions such as wind speed, turbulence, temperature gradients, and humidity may additionally alter the propagation of noise and affect levels at a receiver. Furthermore, the presence of a large object (e.g., barrier, topographic features, and intervening building façades) between the source and the receptor can provide significant attenuation of noise levels at the receiver. The amount of noise level reduction (i.e., shielding) provided by a barrier primarily depends on the size of the barrier, the location of the barrier in relation to the source and receivers, and the frequency spectra of the noise. Natural (e.g., berms, hills, and dense vegetation) and human-made features (e.g., buildings and walls) may be used as noise barriers.

All buildings provide some exterior-to-interior noise reduction. A building constructed with a wood frame and a stucco or wood sheathing exterior typically provides a minimum exterior-to-interior noise reduction of 25 dBA with its windows closed, whereas a building constructed of a steel or concrete frame, a curtain wall or masonry exterior wall, and fixed plate glass windows of 0.25-inch thickness typically provides an exterior-to-interior noise reduction of 30 to 40 dBA with its windows closed (Caltrans 2002).

Table 4.7-1 describes typical A-weighted noise levels for various noise sources. For this analysis, noise levels are A-weighted unless otherwise noted.

Table 4.7-1 Typical A-Weighted Noise Levels		
Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	– 110 –	Rock band
Jet fly-over at 1,000 feet		
	– 100 –	
Gas lawn mower at 3 feet		
	– 90 –	
Diesel truck at 50 feet at 50 miles per hour		Food blender at 3 feet
	– 80 –	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	– 70 –	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	– 60 –	

Table 4.7-1 Typical A-Weighted Noise Levels		
Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
		Large business office
Quiet urban daytime	- 50 -	Dishwasher next room
Quiet urban nighttime	- 40 -	Theater, large conference room (background)
Quiet suburban nighttime		Library
	- 30 -	
Quiet rural nighttime		Bedroom at night, concert hall (background)
	- 20 -	
		Broadcast/recording studio
	- 10 -	
Lowest threshold of human hearing	- 0 -	Lowest threshold of human hearing

Source: Caltrans 2009

NOISE EFFECTS ON HUMANS

Excessive and chronic exposure to elevated noise levels can result in auditory and non-auditory effects on humans. Auditory effects of noise on people are those related to temporary or permanent hearing loss caused by loud noises. Non-auditory effects of exposure to elevated noise levels are those related to behavioral and physiological effects. The non-auditory behavioral effects of noise on humans are associated primarily with the subjective effects of annoyance, nuisance, and dissatisfaction, which lead to interference with activities such as communications, sleep, and learning.

The degree to which noise results in annoyance and interference is highly subjective and may be influenced by several non-acoustic factors. The number and effect of these non-acoustic environmental and physical factors vary depending on individual characteristics of the noise environment such as sensitivity, level of activity, location, time of day, and length of exposure. One key aspect in the prediction of human response to new noise environments is the individual level of adaptation to an existing noise environment. The greater the change in the noise levels that are attributed to a new noise source, relative to the environment an individual has become accustomed to, the less tolerable the new noise source will be perceived.

With respect to how humans perceive and react to changes in noise levels, a 1 dBA increase is imperceptible, a 3 dBA increase is barely perceptible, a 6 dBA increase is clearly noticeable, and a 10 dBA increase is subjectively perceived as approximately twice as loud (Egan 2007). These subjective reactions to changes in noise levels were developed on the basis of test subjects' reactions to changes in the levels of steady-state pure tones or broad-band noise and to changes in levels of a given noise source. It is probably most applicable to noise levels in the range of 50 to 70 dBA, as this is the usual range of voice and interior noise levels. For these reasons, a noise level increase of 3 dBA or more is typically considered substantial in terms of the degradation of the existing noise environment.

Negative effects of noise exposure include physical damage to the human auditory system, interference, and disease. Exposure to noise may result in physical damage to the auditory system, which may lead to gradual or traumatic hearing loss. Gradual hearing loss is caused by sustained exposure to moderately high noise levels over a period of time; traumatic hearing loss is caused by sudden exposure to extremely high noise levels over a short period. Gradual and traumatic hearing loss both may result in permanent hearing damage. In addition, noise may interfere with or interrupt sleep, relaxation, recreation, and communication. Although most interference may be classified as annoying, the inability to hear a warning signal may be considered dangerous. Noise may also be a contributor to diseases associated with stress, such as

hypertension, anxiety, and heart disease. The degree to which noise contributes to such diseases depends on the frequency, bandwidth, and level of the noise, and the exposure time (Caltrans 2009).

VIBRATION

Vibration is the periodic oscillation of a medium or object with respect to a given reference point. Sources of vibration include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) and those introduced by human activity (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, (e.g., operating factory machinery or transient in nature, explosions). Vibration levels can be depicted in terms of amplitude and frequency, relative to displacement, velocity, or acceleration.

Vibration amplitudes are commonly expressed in peak particle velocity (PPV) or root-mean-square (RMS) vibration velocity. PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is typically used in the monitoring of transient and impact vibration and has been found to correlate well to the stresses experienced by buildings (Federal Transit Administration [FTA] 2006, Caltrans 2013). PPV and RMS vibration velocity are normally described in inches per second (in/sec).

Although PPV is appropriate for evaluating the potential for building damage, it is not always suitable for evaluating human response. It takes some time for the human body to respond to vibration signals. In a sense, the human body responds to average vibration amplitude. The RMS of a signal is the average of the squared amplitude of the signal, typically calculated over a 1-second period. As with airborne sound, the RMS velocity is often expressed in decibel notation as vibration decibels (VdB), which serves to compress the range of numbers required to describe vibration (FTA 2006).

The typical background vibration-velocity level in residential areas is approximately 50 VdB. Ground vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels (FTA 2006).

Typical outdoor sources of perceptible ground vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. Construction activities can generate sufficient ground vibrations to pose a risk to nearby structures. Constant or transient vibrations can weaken structures, crack facades, and disturb occupants (FTA 2006).

Construction vibrations can be transient, random, or continuous. Transient construction vibrations are generated by blasting, impact pile driving, and wrecking balls. Continuous vibrations result from vibratory pile drivers, large pumps, and compressors. Random vibration can result from jackhammers, pavement breakers, and heavy construction equipment. Table 4.7-2 includes the general human response to different ground vibration-velocity levels.

Table 4.7-2 Human Response to Different Levels of Ground Noise and Vibration	
Vibration-Velocity Level	Human Reaction
65 VdB	Approximate threshold of perception.
75 VdB	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find that transportation-related vibration at this level is unacceptable.
85 VdB	Vibration acceptable only if there are an infrequent number of events per day.

Notes: VdB = vibration decibels referenced to 1 μ inch/second and based on the root mean square (RMS) velocity amplitude.
Source: FTA 2006

4.7.3 Environmental Setting

SENSITIVE LAND USES AND NOISE LEVELS

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Additional land uses such as parks, schools, historic sites, cemeteries, and recreation areas are also generally considered sensitive to increases in exterior noise levels. Places of worship and transit lodging, and other places where low interior noise levels are essential are also considered noise-sensitive. Those noted above are also considered vibration-sensitive land uses in addition to commercial and industrial buildings where vibration would interfere with operations within the building, including levels that may be well below those associated with human annoyance.

The project site is currently undeveloped and therefore does not contain any existing noise sources. The surrounding land uses include residential directly adjacent to the east and northeast, highway 65 a quarter mile to the south, and the Lincoln Municipal Airport approximately 0.60 mile to the northwest. Some scattered residences are located to the west of the project site.

The sound levels in most communities fluctuate, depending on the activity of nearby and distant noise sources, time of the day, or season of the year. The existing ambient noise environment is primarily defined by local and distant traffic noise and aircraft flyovers. Site observations indicated that activities at the Sierra Pacific Lumber Mill were audible at times, but not significantly elevated. A separate discussion of noise from the mill is provided later in this analysis.

To characterize the existing environment, two long-term, 24-hour sound measurements were taken at Location A and B (Exhibit 4.7-1), from September 9, 2015 to September 10, 2015 and four short-term measurements were taken at locations 1 and 2 (j.c. brennan & associates 2016). See Exhibit 4.7-1 for locations. Noise level measurements were conducted in accordance with American National Standards Institute standards using a Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meter. The sound level meter was calibrated before and after use with an LDL Model CAL200 acoustical calibrator. Meteorological conditions during the measurement period were adequate for reliable noise measurements. See Appendix D for noise measurement data.

Results of the short- and long-term ambient noise measurements are shown in detail in Table 4.7-3. Refer to Appendix D for further details on hourly data during the 24-hour measurements and additional noise statistics.

Table 4.7-3 Noise Measurement Summary									
Measurement Location ¹	Start (Date/Time)	Stop (Date/Time)	A-Weighted Sound Level (dBA)						
Short-Term			CNEL/L _{dn}	L _{eq}	L ₅₀	L _{max}			
1	September 10, 2015/8:00 a.m.	September 10, 2015/10:00 a.m.	NA	49	47	67			
1	September 11, 2015/8:00 a.m.	September 11, 2015/9:00 a.m.	NA	53	50	70			
2	September 10, 2015/10:15 a.m.	September 10, 2015/12:15 p.m.	NA	50	45	63			
2	September 11, 2015/9:15 a.m.	September 11, 2015/10:15 a.m.	NA	47	39	67			
Long-Term (24-hour)			CNEL/L _{dn}	Daytime (7:00 a.m.-10:00 p.m.)			Nighttime (7:00 p.m.-10:00 a.m.)		
				L _{eq}	L ₅₀	L _{max}	L _{eq}	L ₅₀	L _{min}
A	September 9, 2015	September 10, 2015	49	43	36	58	43	39	55
B	September 9 2015	September 10, 2015	52	45	42	60	45	40	59

Refer to Exhibit 4.7-1 for ambient noise level measurement locations.
Source: Data monitored by j.c. brennan & associates, September 2015.

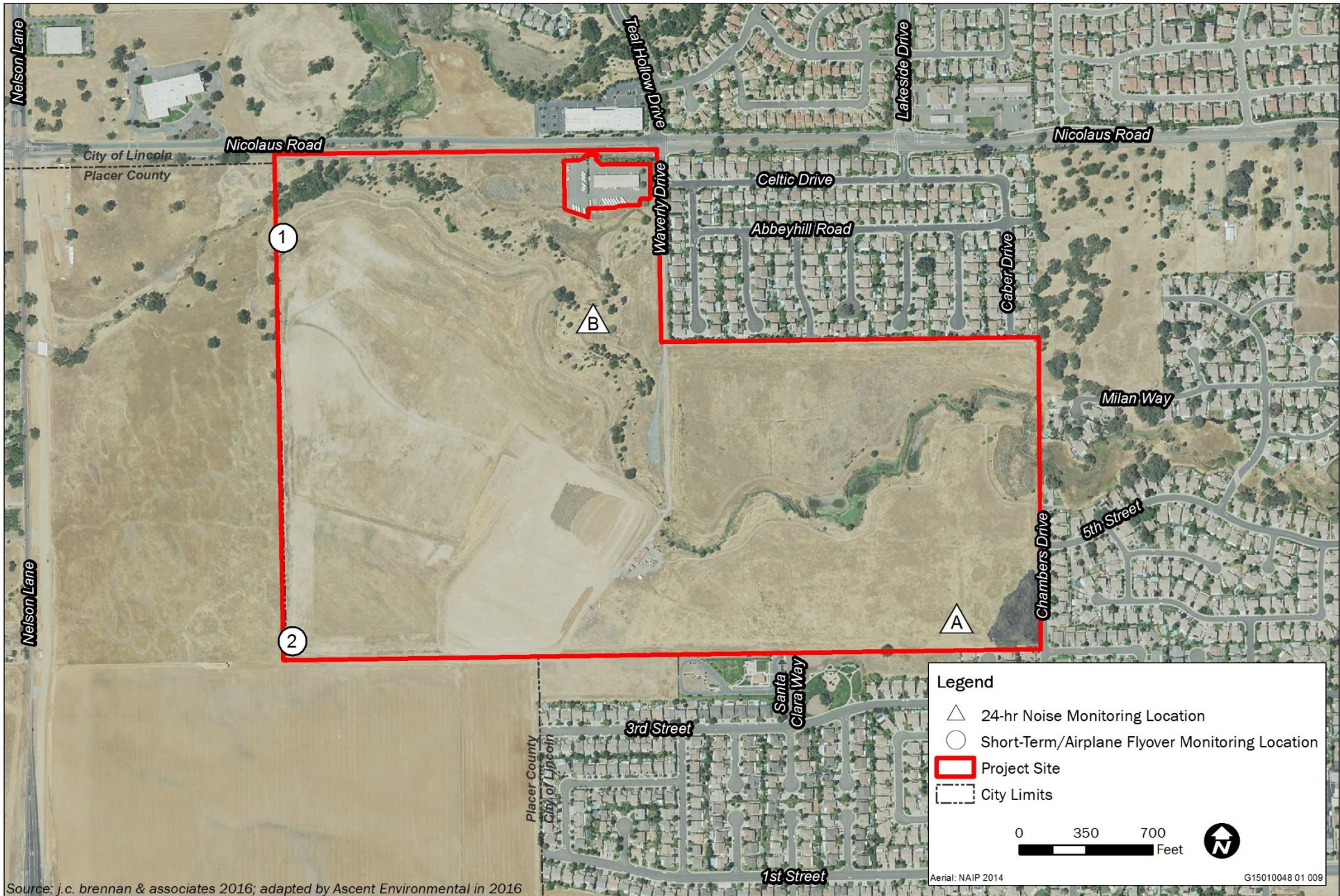


Exhibit 4.7-1

Noise Measurement Locations



4.7.4 Regulatory Setting

FEDERAL

The U.S. Environmental Protection Agency (EPA) Office of Noise Abatement and Control was originally established to coordinate Federal noise control activities. After its inception, EPA Office of Noise Abatement and Control issued the Federal Noise Control Act of 1972, establishing programs and guidelines to identify and address the effects of noise on public health, welfare, and the environment. In 1981, EPA administrators determined that subjective issues such as noise would be better addressed at more local levels of government. Consequently, in 1982 responsibilities for regulating noise control policies were transferred to state and local governments. However, noise control guidelines and regulations contained in EPA rulings in prior years remain in place by designated federal agencies where relevant.

Occupational Health and Safety Act of 1970

This act covers all employers and their employees in the United States and US territories. Administered by the Occupational Safety and Health Administration (OSHA), the act assigns OSHA two regulatory functions—setting standards and conducting inspections to ensure that employers are providing safe and healthful workplaces. Employers must become familiar with the standards applicable to their establishments and eliminate hazards. Included in this act is a regulation for worker noise exposure at 90 dBA over an 8-hour work shift. Areas where exposure exceeds 85 dBA must be designated and labeled as high-noise-level areas and hearing protection is required.

Federal Aviation Administration

The Federal Aviation Administration establishes 65 dB CNEL as the maximum noise exposure limit associated with aircraft noise measured at exterior locations in noise-sensitive land uses (e.g., land uses where quiet environments are essential such as residential areas, churches, and hotels).

Federal Interagency Committee on Aviation Noise

The Federal Interagency Committee on Aviation Noise (FICAN) was established in 1993 to assist agencies in providing adequate forums for discussion of public and private sector proposals, identifying needed research, and encouraging the conduct of research and development in these areas.

In 1992, the Federal Interagency Committee on Noise (FICON) published the *Federal Agency Review of Selected Airport Noise Analysis Issues* that recommended an interim dose-response curve to predict the percent of the exposed population expected to be awakened as a function of the exposure to single-event noise levels expressed in terms of SEL (FICON 1992).

Since the adoption of FICON's interim curve in 1992, substantial field research in the area of sleep disturbance has been completed. In 1997, FICAN published the *Effects of Aviation Noise on Awakenings from Sleep* which recommends the adoption of a new dose-response curve for predicting awakening (FICAN 1997). The FICAN 1997 curve represents the upper limit of the observed field data, and should be interpreted as predicting the "maximum percent of the exposed population expected to be behaviorally awakened," or the "maximum % awakened" for a given residential population. Based on the 1997 FICAN dose-response curve, 10 percent of the population is estimated to be awakened when the SEL interior noise level is 81 dB. An estimated five to 10 percent of the population is affected when the SEL interior noise level is between 65 and 81 dB, and few sleep awakenings (less than five percent) are predicted if the interior SEL is less than 65 dB (FICAN 1997:5).

U.S. Department of Transportation

To address the human response to groundborne vibration, FTA set forth guidelines for maximum-acceptable vibration criteria for different types of land uses. Among these guidelines are the following maximum-acceptable vibration limits:

- ▲ 65 VdB, referenced to 1 microinch per second and based on the RMS velocity amplitude, for land uses where low ambient vibration is essential for interior operations (e.g., hospitals, high-tech manufacturing, laboratory facilities);
- ▲ 80 VdB for residential uses and buildings where people normally sleep; and
- ▲ 83 VdB for institutional land uses with primarily daytime operations (e.g., schools, churches, clinics, offices) (FTA 2006).

STATE

The State of California has adopted noise standards in areas of regulation not preempted by the federal government. State standards regulate noise levels of motor vehicles, sound transmission through buildings, occupational noise control, and noise insulation.

Though not adopted by law, the *State of California General Plan Guidelines 2003*, published by the Governor of California Office of Planning and Research (2003), provide guidance for the compatibility of projects within areas of specific noise exposure. Acceptable and unacceptable community noise exposure limits for various land use categories have been determined to help guide new land use decisions in California communities. In many local jurisdictions, these guidelines are used to derive local noise standards and guidance.

California Department of Transportation

In 2013, Caltrans published the Transportation and Construction Vibration Manual. The Manual provides general guidance on vibration issues associated with construction and operation of projects in relation to human perception and structural damage. Table 4.7-4 below presents recommendations for levels of vibration that could result in damage to structures exposed to continuous vibration.

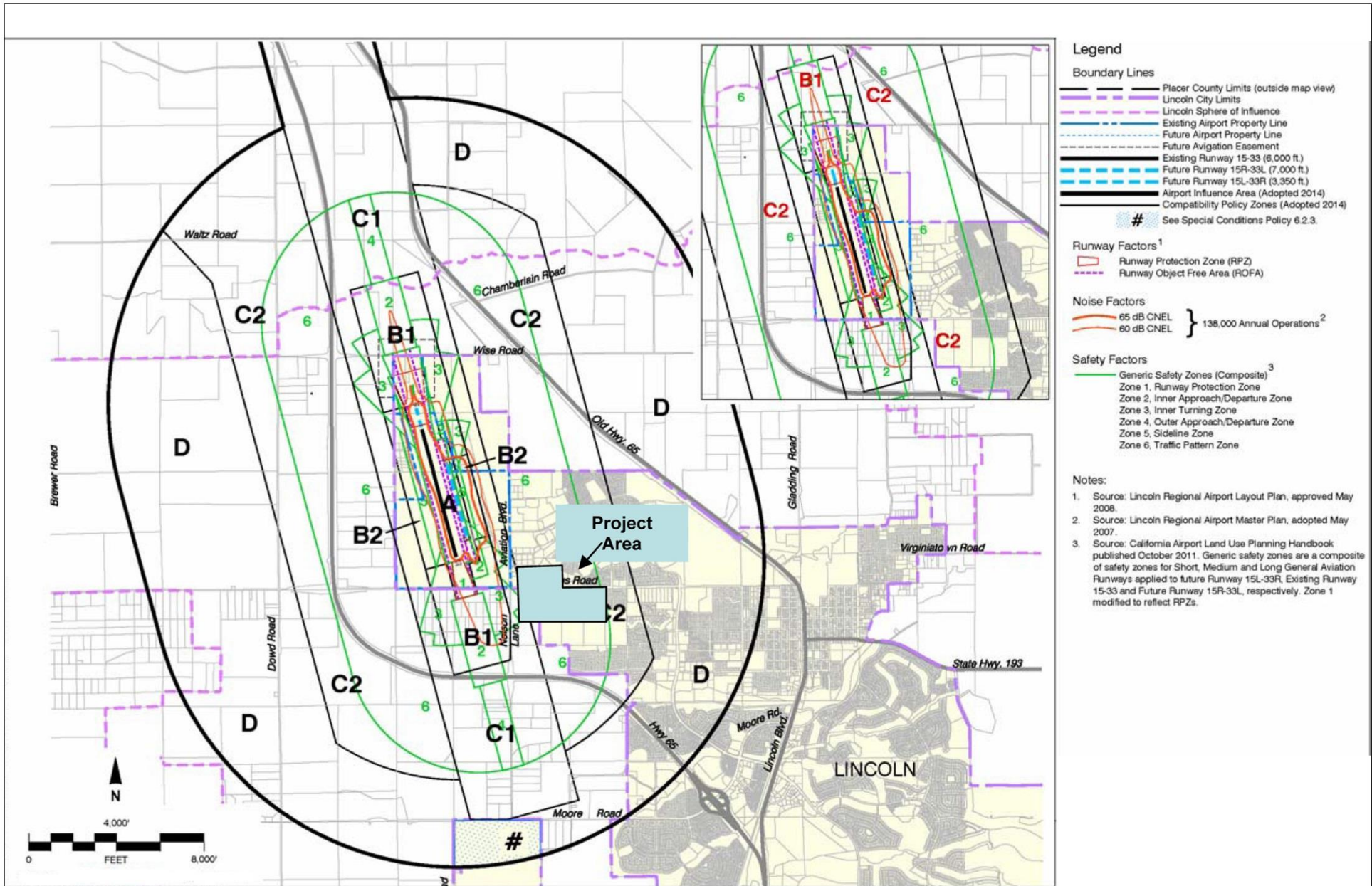
PPV (in/sec)	Effect on Buildings
0.4-0.6	Architectural damage and possible minor structural damage
0.2	Risk of architectural damage to normal dwelling houses
0.1	Virtually no risk of architectural damage to normal buildings
0.08	Recommended upper limit of vibration to which ruins and ancient monuments should be subjected
0.006-0.019	Vibration unlikely to cause damage of any type

Notes: PPV= Peak Particle Velocity
Source: Caltrans 2013

LOCAL

Lincoln Regional Airport Land Use Compatibility Plan

The Lincoln Regional Airport Compatibility Policies and Maps contain policies for evaluating land use consistency and airport noise contours (Placer County Transportation Planning Agency 2014). The plan also contains a table of Land Use Compatibility Criteria and a Land Use Compatibility Factors Map (Exhibit 4.7-2) that depicts land use compatibility zones as well and airport noise contours. Based on this map, the project



Source: j.c brennan & associates 2016

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Exhibit 4.7-2

Land Use Compatibility Factors



site is located within Compatibility Zone C2. The Land Use Compatibility Plan states that single-family residential uses are considered "Normally Compatible" within this zone.

Further, as defined in this plan, annoyance associated with aircraft overflights is the major concern within Compatibility Zone C2. Although the zone lies outside the CNEL 55 dB contour, noise from individual aircraft overflights may adversely affect certain land uses. Safety is a concern only with regard to uses involving high concentrations of people and particularly risk-sensitive uses such as schools and hospitals.

City of Lincoln General Plan Health & Safety Element

The City of Lincoln 2050 General Plan Health and Safety Element was adopted March 2008, establishes the following goals and policies that are applicable to the project:

- ▲ **Policy HS 8.1:** The City will allow the development of new noise-sensitive land uses (which include but are not limited to residential, health care facilities and schools) only in areas exposed to existing or projected levels of noise which satisfy the levels specified in Table 4.7-5.
- ▲ **Policy HS 8.2:** The City will strive to achieve exterior noise levels for existing and future dwellings in residential areas that do not exceed exterior noise levels of 60 dBA CNEL and interior noise levels of 45 dBA CNEL.
- ▲ **Policy HS 8.6:** The City shall require that development around Lincoln Airport be consistent with the noise standards contained in the approved Airport Land Use Commission Plan, and where deemed appropriate, require avigation easements from new development.
- ▲ **Policy HS 8.9:** The City shall use adopted noise compatibility guidelines to evaluate compatibility of proposed new development and ensure compatibility between residential, commercial and other surrounding land uses (See Table 4.7-5, Maximum Allowable Noise Exposure by Land Use).

Table 4.7-5 Maximum Allowable Noise Exposure by Land Use							
Land Use	Noise Level (CNEL)						
	0-55	56-60	61-65	66-70	71-75	75-80	>81
Residential- Low Density Single Family, Duplex, Mobile Homes	Normally Acceptable	Normally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Normally Unacceptable	Unacceptable	Unacceptable
Residential- Multiple Family, Group Homes	Normally Acceptable	Normally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Normally Unacceptable	Unacceptable	Unacceptable
Motels/Hotels	Normally Acceptable	Normally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Normally Unacceptable	Normally Unacceptable	Unacceptable
Schools, Libraries, Churches, Hospitals, Extended Care Facilities	Normally Acceptable	Normally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Normally Unacceptable	Normally Unacceptable	Unacceptable
Auditoriums, Concert Halls, Amphitheatres	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Unacceptable	Unacceptable	Unacceptable	Unacceptable
Sports Arenas, Outdoor Spectator Sports	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Unacceptable	Unacceptable	Unacceptable
Playgrounds, Neighborhood Parks	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Unacceptable	Unacceptable	Unacceptable
Golf Courses, Riding Stables, Water Recreation, Cemeteries	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Unacceptable	Normally Unacceptable	Unacceptable
Office Buildings, Business Commercial and Professional	Normally Acceptable	Normally Acceptable	Normally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Normally Unacceptable	Normally Unacceptable
Industrial Manufacturing, Utilities, Agriculture	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Normally Unacceptable

Source: City of Lincoln 2008

Sierra Pacific Lumber Noise Level Criteria

The City of Lincoln applies a separate set of noise criteria to noise generated from the Sierra Pacific Lumber Mill (j.c. Brennan and associates 2016). The noise limits applicable to noise generated at the nearby lumber mill are as follows:

- ▲ 55 dBA for more than 30 minutes of any hour;
- ▲ 60 dBA for more than 15 minutes of any hour;
- ▲ 65 dBA for more than 5 minutes of any hour;
- ▲ 70 dBA for more than 1 minute of any hour; and
- ▲ 75 dBA for any period of time.

The above standards should be reduced by 5 dBA for events occurring during the nighttime hours (10:00 p.m. – 7:00 a.m.). Therefore, the nighttime noise level standard of 50 dBA L_{50} (level not to be exceeded for more than 30 minutes of any hour) will be applied to the proposed project.

VIBRATION CRITERIA

CEQA states that the potential for any excessive ground noise and vibration levels must be analyzed; however, it does not define the term “excessive.” Numerous public and private organizations and governing bodies have provided guidelines to assist in the analysis of ground noise and vibration; however, the federal, state, and local governments have yet to establish specific ground noise and vibration requirements. Caltrans and FTA have published reports addressing the analysis of ground noise and vibration relating to transportation and construction-induced vibration.

With respect to structural damage, Caltrans recommends that a level of 0.2 in/sec PPV not be exceeded for the protection of normal residential buildings, and that 0.1 in/sec PPV not be exceeded for the protection of old or historically significant structures (Caltrans 2013).

To address the human response to groundborne vibration, FTA has guidelines for maximum-acceptable vibration criteria for different types of land uses. These guidelines recommend 65 VdB referenced to 1 μ in/sec and based on the RMS velocity amplitude for land uses where low ambient vibration is essential for interior operations (e.g., hospitals, high-tech manufacturing, laboratory facilities); 80 VdB for residential uses and buildings where people normally sleep; and 83 VdB for institutional land uses with primarily daytime operations (e.g., schools, churches, clinics, offices) (FTA 2006).

With respect to human response within residential uses (i.e., annoyance), FTA recommends maximum acceptable vibration levels of 80 VdB, respectively (FTA 2006).

4.7.5 Impacts

SIGNIFICANCE CRITERIA

Based on the Appendix G of the State CEQA Guidelines, noise policies and standards in the City of Lincoln General Plan, and Caltrans and FTA vibration standards, the project would result in a significant impact related to noise or vibration if it would:

- ▲ result in a substantial temporary or periodic (i.e., construction-noise) increase in ambient noise levels in the project vicinity above levels existing without the project;
- ▲ expose persons to or generation of excessive ground vibration or ground noise levels (i.e., exceed the Caltrans recommended level of 0.2 in/sec PPV with respect to the prevention of structural damage for normal buildings or the FTA maximum acceptable level of 80 VdB with respect to human response for residential uses [i.e., annoyance] at nearby existing vibration-sensitive land uses);

- ▲ expose persons to or generate stationary (non-transportation) noise levels in excess of applicable allowable levels (e.g., long-term exposure of sensitive receptors [existing or proposed] to stationary noise [existing or project-generated] that exceed 60 dB CNEL [exterior], 45 dB CNEL [interior]);
- ▲ result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project (e.g., long-term exposure of existing sensitive receptors to increased project-generated noise levels of 3 dB or more or that exceed applicable allowable levels);
- ▲ for a project located within an airport land use plan, or where such a plan has not been adopted, within 2 miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels. Excessive noise levels for the purpose of this analysis Would be interior noise standards of 65 dB SEL for sleeping areas of residential land uses, which is the aircraft-generated SEL, for a single noise event, identified by FICAN that would result in an awakening level of five percent or less (FICAN 1997:5);

METHODS AND ASSUMPTIONS

To assess potential short-term (construction-related) noise and vibration impacts, sensitive receptors and their relative exposure were identified. Project-generated construction source noise and vibration levels were determined based on methodologies, reference emission levels, and usage factors from the FTA *Guide on Transit Noise and Vibration Impact Assessment* methodology (FTA 2006) and the Federal Highway Administration (FHWA) *Roadway Construction Noise Model User's Guide* (FHWA 2006). Reference levels are noise and vibration emissions for specific equipment or activity types that are well documented in the field of acoustics.

The assessment of long-term (operational) impacts was based on The Independence at Lincoln Environmental Noise Assessment prepared by j.c. brennan & associates (2016). The noise assessment evaluated operational noise associated with the existing Sierra Pacific Lumber Mill and the Lincoln Regional Airport. Noise from the Sierra Pacific Lumber Mill was based on sound-level measurements as well as computer-based modeling software Environmental Noise Model to develop noise contours generated by the mill. Noise associated with the nearby airport was captured by several noise level measurements and impacts were evaluated in accordance with the Lincoln Regional Airport Land Use Compatibility Plan. The potential for sleep disturbance was evaluated in accordance with applicable FICAN recommendations. Land-use compatibility was assessed in accordance with the City of Lincoln 2050 General Plan Goals and Policies.

The assessment of potential long-term operational traffic-noise increases was based on traffic modeling conducted for the project. Traffic modeling evaluated average daily traffic (ADT) volumes under existing and existing plus project conditions. (Appendix D).

ISSUES DISMISSED FROM FURTHER CONSIDERATION

The project would not result in the development of any new stationary sources or land uses that would generate substantial noise. Long-term operational noise impacts from stationary sources to existing receptors is not discussed further in this EIR.

IMPACTS AND MITIGATION MEASURES

Impact 4.7-1: Construction noise impacts.

Worst-case construction-related activities could result in noise levels of up to 91 dBA L_{eq} and 95 dBA L_{max} at 50 feet from the acoustical center of the construction site. Existing sensitive receptors are located within 50 feet to the north and to the east of the project site where construction activities could take place. Given the 3-year timeframe of construction, the relatively high noise levels associated with construction activities, and the close proximity of existing residences to construction activities, project-generated construction activities could result in substantial temporary increases in noise. This would be a **potentially significant** impact.

Construction noise levels in the vicinity of the project site would fluctuate depending on the particular type and number of equipment and the duration of usage for the varying equipment. The effects of construction noise largely depend on the type of construction activities occurring on any given day; noise levels generated by those activities; distances to noise sensitive receptors; potential noise attenuating features such as topography, vegetation, and existing structures; and the existing ambient noise environment in the receptor vicinity. Construction generally occurs in several discrete stages, each phase requiring a specific set of equipment with varying equipment type, quantity, and intensity. These variations in the equipment change the effect they have on the noise environment of the project site and surrounding area during the construction process.

When construction-related noise levels are evaluated, activities that occur during the more noise-sensitive evening and nighttime hours are of increased concern. Because exterior ambient noise levels typically decrease during the late evening and nighttime hours as traffic volumes and commercial activities decrease, construction activities performed during these more noise-sensitive periods can result in increased annoyance and potential sleep disruption for occupants of nearby residences.

The project is anticipated to be built out over approximately three years depending on factors such as market demand and changes in the development goals or financial capabilities of property developers. It is anticipated that construction of infrastructure would begin mid-2016 and be complete in late 2019. Construction activities would occur in multiple stages, with a majority of the grading and site improvements occurring first. However, as construction throughout the site proceeds, it is likely that vertical construction occurring on some portions of the site would occur simultaneously with grading/site preparation activities at occurring at other portions of the site. For a complete description of construction phasing and activities, please refer to the Project Description, Chapter 3 of this Draft EIR).

Construction activities associated with project development would include excavation and relocation of soil on the site, backfilling and compaction of soils, construction of utilities and service systems (i.e., potable water conveyance, domestic well, wastewater conveyance, sewer lift station, storm water drainage facilities, three drainage basins, underground electrical, and construction of proposed residential and mixed use land uses). No pile driving or blasting is proposed.

The site preparation phase typically generates the most substantial noise levels because the onsite equipment associated with grading, compacting, and excavation are the noisiest. Site preparation (e.g., infrastructure, utilities, grading) could potentially overlap building construction and therefore, for a conservative analysis, the equipment likely to be used during these two phases were combined to represent a worst-case loudest construction scenario. Typical noise levels generated by construction equipment anticipated to be used are identified in Table 4.7-6.

Equipment Type	Typical Noise Level (dBA) @ 50 feet
Grader	85
Dozer	85
Excavator	85
Loader/Backhoe	80
Scraper	85
Crane	85
Boring Jack Power Unit	80
Forklift	85
Paver	85
Roller	85

Table 4.7-6 Noise Emission Levels from Construction Equipment	
Equipment Type	Typical Noise Level (dBA) @ 50 feet
Air Compressor	80
Generator Set	82
Welder	73

Source: FHWA 2006

Based on the information provided in Table 4.7-6, and accounting for typical usage factors of individual pieces of equipment and activity types, worst-case construction-related activities could result in noise levels of up to 91 dBA L_{eq} and 95 dBA L_{max} at 50 feet from the acoustical center of the construction site.

Construction would occur over three years in two separate phases over a project site of approximately 195 acres and development would be generally driven by market demand. Therefore, it cannot be determined at this time where worst-case construction-noise levels would occur and what existing sensitive receptors may be affected. Further, existing sensitive receptors are located within 50 feet to the north and to the east of the project site where development is proposed. Thus, given the three-year timeframe of construction, the relatively high noise levels associated with construction activities, and the close proximity of existing residences to construction activities, project-generated construction activities could result in substantial temporary increases in noise. This would be a **potentially significant** impact.

Mitigation Measures

Mitigation Measure 4.7-1: Construction noise impacts.

To minimize noise levels during construction activities, construction contractors shall comply with the following measures during construction:

- ▲ All construction equipment and equipment staging areas shall be located as far as possible from nearby noise-sensitive land uses.
- ▲ All construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.
- ▲ All construction equipment with back-up alarms shall be equipped with either audible self-adjusting backup alarms or alarms that only sound when an object is detected. The self-adjusting backup alarms shall automatically adjust to 5 dBA over the surrounding background levels. All non self-adjusting backup alarms shall be set to the lowest setting required to be audible above the surrounding noise levels. In addition to the use of backup alarms, the construction contractor shall consider other techniques such as observers and the scheduling of construction activities such that alarm noise is minimized.
- ▲ When future noise sensitive uses are within close proximity to prolonged construction noise, noise attenuating buffers such as structures, truck trailers, temporary noise curtains or sound walls, or soil piles shall be located between noise sources and the receptor to shield sensitive receptors from construction noise.

Significance after Mitigation

Implementation of Mitigation Measure 4.7-1 would ensure that all noise-inducing construction equipment would be operated correctly and that all available noise-reducing technology would be installed on equipment. Further, Mitigation Measure 4.7-1 would encourage the use of alternative, quieter, construction techniques and would require that all noise-generating activities are located as far away from sensitive

receptors as possible. Provided that construction that could potentially affect existing sensitive receptors would occur during the daytime hours, when people are typically not at home, and all noise reducing measures included in Mitigation Measure 4.7-1 are in place, short-term construction noise would be substantially reduced and this impact would be reduced to a **less-than-significant** level.

Impact 4.7-2: Short-term construction vibration impacts.

No blasting or pile driving is proposed and, therefore, maximum vibration levels would be associated with the use of graders and jack and bore activities during site preparation/utility installation. Based on reference vibration levels for these types of activities, no existing nearby structures would be exposed to vibration levels that could cause structural damage. Further, vibration-generating activities would occur during the less sensitive times of the day, would be intermittent, and would not occur in the same locations for extended periods of time and therefore would not result in sleep disturbance or annoyance to nearby residence. This impact would be **less than significant**.

Construction activities generate varying degrees of temporary ground vibration, depending on the specific construction equipment used and activities involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. Construction-related ground vibration is normally associated with impact equipment such as pile drivers, jackhammers, and the operation of some heavy-duty construction equipment, such as bulldozers and trucks. Blasting activities also generate relatively high levels of ground vibration however are not proposed. The effects of ground vibration may be imperceptible at the lowest levels, result in low rumbling sounds and detectable vibrations at moderate levels, and high levels of vibration can cause sleep disturbance in places where people normally sleep or annoyance in buildings that are primarily used for daytime functions and sleeping.

The project would not include the development of any new major sources of ground vibration (e.g., no new highways or railroads). As described above (see Impact 4.7-1), development of the project would include construction activities that require the use of various types of equipment. Construction of the project may result in varying degrees of temporary ground vibration and noise, depending on the specific construction equipment used and activities involved (Table 4.7-7). The project would include bore and jack operations under a segment of Markham Ravine (see Exhibit 3-6 for approximate location) to allow installation of sewer lines without encroaching within the waterway and surrounding open space corridor. Based on reference vibration levels for construction equipment, maximum ground vibration and noise levels would be associated with the use of dozers and drilling equipment (jack and bore activities).

Table 4.7-7 Representative Ground Vibration and Noise Levels for Construction Equipment

Equipment	PPV at 25 feet (in/sec) ¹	Approximate L _v (VdB) at 25 feet ²
Large Bulldozer	0.089	87
Drilling	0.089	87
Loaded Trucks	0.076	86
Small Bulldozer	0.003	58

PPV = peak particle velocity; L_v = the root mean square velocity expressed in vibration decibels (VdB), assuming a crest factor of 4

Source: FTA 2006

According to FTA, vibration levels associated with drilling or earth moving with a dozer are 0.089 in/sec PPV and 87 VdB at 25 feet. With regards to the potential for vibration levels to cause structural damage, these levels would not exceed recommended levels even for buildings considered extremely susceptible to vibration damage of 0.12 in/sec PPV at 50 feet. No potential for damage to existing residential properties adjacent to the project site would occur. With regards to human disturbance, FTA recommends levels of 80 VdB for land uses and buildings where people normally sleep (i.e., residential land uses). As described in the project description, all construction activities would occur during the less sensitive times of the day.

Therefore, although construction activities could result in vibration levels that could cause annoyance, construction activities would not occur during the times when people are most likely to be disturbed. Further, due to the mobile nature of construction activities, no one piece of vibration-generating construction equipment would operate at the same location for extended periods of time, thus not affecting any one receptor. Construction would not result in the exposure of excessive noise or vibration levels to any receptor or structure. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 4.7-3: Exposure of new sensitive receptors to existing noise levels.

The project would result in the placement of new sensitive land uses, such as residences, in proximity to existing noise sources; including the Lincoln Regional Airport, the Sierra Pacific Lumber Mill, and traffic-noise on nearby roads. Proposed land uses would be consistent with the Lincoln Regional Airport Land Use Compatibility Map and aircraft noise would not exceed applicable interior noise standards of 65 dBA SEL. Operations at the nearby Sierra Pacific Lumber Mill would not exceed City of Lincoln noise limits for sensitive receptors on the project site, and existing noise levels are below maximum allowable standards of 60 dBA CNEL (exterior) and 45 dBA CNEL (interior). This impact would be **less than significant**.

The project would result in the development of new sensitive receptors and other land uses on a site that is currently undeveloped. Existing noise sources surrounding the project site include traffic-noise, primarily from Nicolaus Road on the north boundary of the site, aircraft flyover associated with the Lincoln Municipal Airport 0.8 mile to the northwest (nearest runway), and operations at the Sierra Pacific Lumber Mill located 0.9 mile to the northeast (center of mill operations). Noise exposure from existing noise sources and land use compatibility are discussed separately below.

Lincoln Regional Airport

Consistent with City of Lincoln General Plan Health and Safety Element Policy HS 8.6, this impact assesses the project's land use compatibility with the Lincoln Regional Airport, which is located approximately 0.8 mile northwest of the project site. Based on noise contours developed for the Year 2033 in the Airport Land Use Compatibility Plan, the project is located outside of the 55 dB CNEL contour. Exhibit 4.7-2 shows the location of the project site relative to the noise contours for the Lincoln Regional Airport. Therefore, the project would comply with the exterior noise level standards of 60 dB CNEL. With regards to interior noise standards of 45 dBA CNEL, assuming typical residential structure construction consisting of dual glazed windows and facades of either stucco, wood, or vinyl, a typical exterior to interior noise level reduction of at least 25 dBA would be achieved, thus interior noise levels would not exceed 45 dBA CNEL (i.e., 55 dBA minus 25 dBA is 30 dBA).

In addition to applicable land use compatibility noise standards, aircraft noise has the potential to cause sleep disturbance at the new proposed residences. Sleep disturbance is best characterized by SEL that more accurately characterizes the noise event and sound levels experienced by the receiver for intermittent but relatively loud events such as aircraft flyovers.

As described above, noise measurements were conducted at Sites 1 and 2 that captured aircraft flyover noise events. During the measurements, 54 single-engine aircraft, two business jets, and two helicopters were observed. The mean SEL for the single-engine aircraft was 72.2 dBA. The mean SEL for the helicopters was 67.8 dBA. The mean SEL for the business jets was 72.6 dBA. Typical building construction with dual-pane windows and exterior walls of either wood, stucco, or vinyl, new residences would provide at least a 25 dB exterior-to-interior noise reduction (j.c. Brennan & associates 2016). Thus, assuming the worst-case exterior noise level of 73 dBA SEL, interior noise levels could reach 48 dBA SEL.

In accordance with FICAN guidance, interior SEL noise levels below 65 dBA would result in a chance of sleep disturbance of less than five percent. It is important to note that the five percent chance of sleep disturbance

associated with interior noise levels of 65 dBA SEL account for a single aircraft event. As described above, it was estimated that up to 14 aircraft flight events could occur over the project through the course of one night. The compounding effect of multiple events in one night results in a 14 percent chance of sleep disturbance/awakening (j.c. Brennan & associates 2016). Therefore, although the mean SEL interior noise level is relatively low in comparison to 65 dBA associated with a five or less percent chance of awakening per FICAN guidance, the additive effect of multiple noise events in one night increases the likelihood that one would be awakened or otherwise disturbed during sleep over the course of the entire night.

The increased chance of being awakened during sleep from multiple noise events does not compare to the five percent chance of being awakened as described by FICAN, which is associated with a single event. No guidance is available for determining the significance of sleep disturbance when considering the additive effect of multiple noise events occurring in one night. It would be inaccurate and overly conservative to apply the five percent chance of awakening threshold of significance, which is based on one noise event, to the project's calculated 14 percent chance of awakening where multiple noise events could occur in one night (i.e., up to 14 aircraft flyovers). Consistent with FICAN recommendations, a five percent chance of awakening is used for comparison to single aircraft flyovers occurring at the project site. Based on these criteria and the measured maximum exterior SEL noise level of 73 dBA, interior noise levels would not exceed 65 dBA SEL for single noise events. Thus, individual aircraft flight events would not result in a greater than five percent potential for sleep disturbance at proposed residential land uses.

Sierra Pacific Lumber Mill

A noise study was conducted to determine noise levels associated with the Sierra Pacific Lumber Mill located approximately 0.9 mile from the project site (j.c. brennan & associates, Inc. 2016). Detailed noise level measurements of the large-log mill and debarker, planer building, cogeneration plant, and dehydrator building were used as direct inputs to the ENM. The ENM was used to develop overall noise contours associated with the mill. Exhibit 4.7-3 shows the results of the analysis, and indicates that the project site is located outside of the 40 dBA L50 noise level contour. Based on the noise contours shown on Exhibit 4.7-3, the project site would be located outside of the predicted 50 dB L₅₀ exterior noise level standard applied to noise from the lumber mill. Compliance with CNEL noise standards at the proposed land uses is described below. Noise generated from typical operations at the lumber mill would not expose new sensitive land uses to excessive noise levels.

Land Use Compatibility

Policy HS 8.2 of the City of Lincoln General Plan Health and Safety Element has established acceptable exterior (i.e., 65 dBA CNEL) and interior (i.e. 45 dBA CNEL) noise levels for new residential land uses. Policy HS 8.1 and HS 8.9 require projects to evaluate proposed land uses with respect to adopted noise compatibility guidelines (Table 4.7-5). Residential land uses have the most stringent standards and therefore compliance with these would ensure compliance for other potential land uses proposed. As such, this analysis is focused on residential land use compatibility guidelines. To assess project compatibility with these standards, the ambient noise measurements taken for the project were relied on. As described above, two 24-hour measurements were taken on the project site. These measurements were conducted to characterize the 24-metric. Based on noise measurements taken throughout the project site (Table 4.7-3 and Exhibit 4.7-1), proposed residential land uses would not be exposed to exterior noise levels of 60 dBA CNEL. Consequently, as typical building construction results in a minimum of a 25 exterior-to-interior noise reduction, interior noise levels would be below the 45 dBA CNEL interior noise standard for all proposed land uses. New sensitive land uses would not be exposed to noise levels in excess of applicable City of Lincoln Noise standards.



Source: j.c.brennan & associates 2016

X15010048 01 024

Exhibit 4.7-3

Sierra Pacific Lumber Mill Noise Contours



Summary

The project would result in the placement of new sensitive land uses, such as residences, in proximity to existing noise sources; including the Lincoln Regional Airport, the Sierra Pacific Lumber Mill, and traffic-noise on nearby roads. With regards to noise generated from the nearby Lincoln Regional Airport, it was assumed that up to 14 aircraft flyover events could occur at the project site per night. However, individual aircraft flyover events would not exceed FICAN-recommended interior noise levels of 65 dBA SEL. Thus, proposed residences would not be exposed to SEL associated with increased potential for sleep disturbance (i.e., 5 percent or less chance of being awakened).

Noise from the Sierra Pacific Lumber Mill would not exceed applicable standards at the project site and; therefore, would not result in exposure of new sensitive receptors to excessive noise levels. Existing noise levels within the project site were measured at two separate locations. Existing levels are influenced by nearby roadway traffic, the Lincoln Regional Airport, and operations at the Sierra Pacific Lumber Mill. Based on the measurements conducted, noise levels were below the exterior noise level standard of 60 dBA CNEL and; therefore, no proposed land use would be exposed to exterior noise levels greater than 60 dBA CNEL. Assuming an exterior-to-interior noise reduction of at least 25 dB, exterior noise levels of 60 dB would be reduced to 35 dBA. Interior noise levels for all proposed land uses would not exceed 45 dBA CNEL. This impact would be **less than significant**.

Impact 4.7-4: Project-generated operational traffic-noise.

Implementation of the project would not result in substantial traffic-noise increases. Project-generated traffic increases would result in a maximum 32 percent increase in local traffic volumes which would not result in a doubling of existing traffic volumes. Thus, long-term traffic-generated noise increases would not be perceptible (i.e., increases would be less than 3 dB). This impact would be **less than significant**.

Project implementation would result in an increase in average daily traffic volumes on affected roadway segments and subsequently an increase in traffic noise levels. Generally, a doubling of a noise source (such as twice as much traffic) is required to result in an increase of 3 dB, which is perceived as barely noticeable by people (Egan 2007: p 21). Thus, with regard to traffic noise specifically, an increase in 3 dB or a doubling in ADT would be considered substantial.

To assess this impact, project-specific ADT on affected roadway segments under existing and existing plus project conditions were obtained from the traffic study (Fehr & Peers 2016). Further details regarding traffic modeling assumptions and parameters are provided in Chapter 4.10, "Traffic and Transportation." Existing and existing plus project ADT on affected roadway segments are shown below in Table 4.7-8.

Table 4.7-8 Summary of Average Daily Traffic under Existing and Existing Plus Project Conditions

Study Road Segments	Average Daily Traffic		
	Existing Conditions	Existing Plus Project Conditions	Net Increase
Nicolaus Road east of Nelson Lane/Aviation Boulevard	7,300	9,700	2,400
Nicolaus Road west of Joiner Parkway	8,700	11,500	2,800
5 th Street west of Joiner Parkway	1,600	1,600	0
3 rd Street west of Joiner Parkway	2,000	2,000	0
3 rd Street west of Chambers Drive	800	8,00	0
1 st Street west of Joiner Parkway	4,300	4,300	0
1 st Street west of Chambers Drive	1,500	1,500	0

Refer to Chapter 4.10, "Traffic and Transportation," and Appendix F for detailed traffic data, and traffic-noise modeling input data and output results.

Source: Fehr & Peers, 2016

Based on the net increases projected on affected roadway segments, only ADT on Nicolaus Road is projected to increase. As shown in Table 4.7-8, ADT on Nicolaus Road would increase by a maximum of 32 percent (i.e., from 7,300 ADT to 9,700). This level of ADT increase would not represent a doubling of the noise source and, thus, would not result in traffic-noise increases that are perceptible (i.e., 3 dB or more). Therefore, traffic increases associated with project operation would not result in a substantial permanent increase in long-term operational noise. No existing sensitive receptors would experience substantial increases in noise. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

4.8 POPULATION, EMPLOYMENT, AND HOUSING

This section describes current conditions relative to population, employment, and housing in City of Lincoln through information gathered from the U.S. Census, the State of California Department of Finance, City of Lincoln General Plan, and City of Lincoln 2013-2021 Housing Element. Potential effects on population growth and employment, and impacts associated with displacement of housing or populations, are evaluated.

4.8.1 Environmental Setting

POPULATION

Regional Setting

The City of Lincoln is located in western Placer County. In 2015, Placer County’s population was approximately 369,000 people, increasing by approximately six percent from 2010 (DOF 2016a). Population levels in Placer County are projected to increase by approximately 250,000 people over the next 45 years (DOF 2016b). Current and project populations levels in Placer County are shown in Table 4.8-1.

	2015	2020	2030	2040	2050	2060
Total Population	369,000	396,000	448,000	510,000	567,000	620,000

Source: DOF 2016a, 2016b

Note: Based on Baseline 2013 Population Projection Series

City of Lincoln

According to the California Department of Finance, the City of Lincoln had a population of approximately 46,000 in 2015 (DOF 2015). For much of its history, the population of Lincoln grew at a fairly slow rate; however, the City’s population surged between 2000 and 2010. Lincoln was the fastest-growing place in the U.S. in the 2000s, and one of only four places to see its population more than triple. The population is projected to continue increasing, but at a rate of only 11 percent, through 2035 (2010 baseline) reaching approximately 92,350 people (City of Lincoln 2013).

EMPLOYMENT

Regional

According to the California Employment Development Department employment projections from 2008 to 2018 for the Sacramento–Arden-Arcade–Roseville Metropolitan Statistical Area, which includes Placer, El Dorado, Sacramento, and Yolo Counties, the occupation groups that are expected to see the most growth are healthcare practitioners and related technical work (a 25 percent increase), healthcare support (a 27 percent increase), and personal care and services (a 29 percent increase). While the healthcare practitioner group is fairly high-paying, many jobs in the other two growing occupation categories are likely to pay wages in the low- and moderate-income ranges (City of Lincoln 2013).

Table 4.8-2 shows employment levels by industry in Placer County and the greater Sacramento Region.

Table 4.8-2 Employment Statistics in Placer County and the Sacramento Region							
	2002	2007	2008	2009	2010	2011	2012
Placer County							
Total	120,700	140,400	136,900	126,300	126,200	127,400	131,800
Agriculture	400	300	400	300	300	400	400
Mining and Logging	100	100	100	100	100	0	0
Construction	14,700	14,700	12,300	9,200	8,400	8,100	8,400
Manufacturing	8,100	8,500	7,900	7,000	6,600	6,600	6,300
Trade, Transportation, and Utilities	23,500	29,200	27,900	26,000	25,900	26,200	27,500
Information	2,500	2,600	2,400	2,500	2,500	2,300	2,300
Financial	8,200	11,300	10,600	10,000	9,700	9,700	10,200
Professional and Business Services	12,700	14,300	14,600	12,800	13,000	13,300	13,900
Educational and Health Services	11,800	15,800	16,700	17,100	18,100	19,300	20,400
Leisure and Hospitality	15,400	19,100	19,300	18,000	18,100	18,500	18,700
Other Services	3,900	4,500	4,700	4,700	4,500	4,700	5,000
Government	19,500	20,000	19,900	18,700	18,900	18,200	18,700
Sacramento Region							
Total	882,900	957,500	934,800	882,000	859,100	858,100	872,700
Agriculture	12,500	12,600	12,700	12,700	12,700	12,900	13,400
Mining and Logging	1,100	1,000	1,100	700	700	600	600
Construction	63,400	69,300	58,200	45,000	39,800	38,200	38,600
Manufacturing	45,100	43,500	41,000	36,400	34,800	35,300	36,000
Trade, Transportation, and Utilities	148,500	162,000	155,000	142,700	140,300	141,900	146,900
Information	23,400	20,500	19,700	18,800	17,600	16,700	15,700
Financial	56,300	63,000	58,600	54,300	49,700	47,900	48,900
Professional and Business Services	103,700	115,400	113,000	103,700	104,800	106,700	113,400
Educational and Health Services	83,100	102,800	105,600	105,600	104,900	108,000	111,000
Leisure and Hospitality	78,900	90,300	89,600	85,500	83,900	85,600	87,300
Other Services	29,600	30,200	30,700	29,800	29,100	29,000	29,200
Government	237,400	246,900	249,800	246,600	240,700	235,100	231,800
Source: Placer County 2014							

City of Lincoln

The major economic sectors for all of Placer County are similar, but not identical to the City's economic sectors. As of 2010, the education, health, and social services economic sector was the largest employer of Lincoln residents, providing 2,602 jobs. The second largest sector was retail trade, which employed 1,887 residents, or 13 percent of the workforce. Other large economic sectors include professional/scientific/administrative (1,766 people, or 12 percent), public administration (1,410 people, or 10 percent), and construction (1,282 people, or 9 percent). The total employed population in the City is 14,473 as of 2010 (City of Lincoln 2013).

Within the City of Lincoln, in 2012, there were 18,246 housing units and 8,416 employees. This corresponds to a jobs-to-housing ratio in the City of approximately 0.5 (SACOG 2016).

HOUSING

Existing Housing Units

Tables 4.8-3 shows the housing stock for Lincoln and Placer County in 2010, according to the California Department of Finance. The majority of dwelling units in Lincoln, approximately 93 percent, were single-family homes. By comparison, approximately 82 percent of Placer County housing units were single-family. Approximately six percent of Lincoln housing units were multifamily and approximately one percent were mobile homes.

Housing Type	Lincoln		Placer County	
	Number	Percentage	Number	Percentage
Single-family, detached	16,297	91	117,728	78
Single-family, attached	295	2	4,839	3
Multifamily (2-4 units)	327	2	6,301	4
Multifamily (5 units or more)	789	4	17,063	11
Mobile homes	96	1	4,751	3
Total	17,804	100	15,0682	100

Source: City of Lincoln 2013

Vacancy rates are an indicator of housing supply and demand. Low vacancy rates influence greater upward price pressures and higher vacancy rates indicate downward price pressures. A five to six percent vacancy rate is generally considered healthy. According to the 2010 US Census, approximately six percent of Lincoln housing units (883 units) were vacant. The vacancy rate in Lincoln was lower than that of Placer County as a whole, which had a vacancy rate of 13 percent (City of Lincoln 2013).

4.8.2 Regulatory Setting

FEDERAL

There are no federal population, employment, or housing regulations or policies applicable to the project.

STATE

There are no state population, employment, or housing regulations or policies applicable to the project.

LOCAL

City of Lincoln General Plan

The general plan establishes the distribution of land uses (e.g., residential, commercial, agricultural, open space) and the maximum intensity and density of future development within the unincorporated areas under the County's jurisdiction. The Housing Element of the general plan includes the following housing-related policies applicable to development of the project site:

Housing Element

- ▲ **Policy 1:** Provide sufficient land zoned for a variety of housing types to accommodate the City's regional housing needs allocation under the January 1, 2013–October 31, 2021 Sacramento Area Council of Governments (SACOG) Regional Housing Needs Plan.
- ▲ **Policy 2:** Facilitate the construction of a variety of housing types affordable to all income levels.

4.8.3 Environmental Impacts and Mitigation Measures

THRESHOLDS OF SIGNIFICANCE

The project would cause a significant impact on population and housing if the project would:

- ▲ induce substantial population growth in an area, either directly or indirectly;
- ▲ displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere; or
- ▲ displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

ISSUES OR POTENTIAL IMPACTS NOT DISCUSSED FURTHER

The project site is currently vacant. Therefore, people and housing units would not be displaced as a result of project construction and implementation. These issues are not discussed further in this EIR.

METHODS OF ANALYSIS

This analysis compares the additional residences and associated population growth potentially accommodated by the project to the projections used in applicable planning documents to determine if the project would induce substantial population growth. Employment rates were determined using the following ratios (U.S. Green Building Council 2008):

- ▲ Specialty retail store – 549 employees per square foot
- ▲ Office park – 278 employees per square foot

IMPACTS AND MITIGATION MEASURES

Impact 4.8-1: Directly or indirectly induce substantial population growth during construction.

During the 36-month construction period, the project would require up to 163 workers during peak construction. Because the project site is located in an urban area with a substantial construction workforce, it is expected that workers would be drawn from the local labor pool and that a sufficient number of construction workers are available in the county and adjacent communities to meet this demand. Furthermore, even if some construction workers from outside the region were employed at the project site, construction workers typically do not change residences when assigned to a new construction site, and substantial permanent relocation of workers to the area is not anticipated. This impact would be **less than significant**.

The project is anticipated to employ a maximum of 163 workers during the peak construction period. The existing number of residents in the county who are employed in the construction industry (approximately

8,400 as of 2012) would be sufficient to meet the needed number of construction workers for the project. Further, construction employees could commute from other nearby communities outside from the greater Sacramento Region (approximately 38,600 in 2012). Therefore, the project's anticipated construction labor force would be fulfilled by residents currently living in the region and would not result in substantial increased housing demand in the region. Furthermore, even if some construction workers from outside the region were employed at the project site, construction workers typically do not change residences when assigned to a new construction site, and substantial permanent relocation of these workers to the area is not anticipated. Therefore, the project would not be expected to generate the need for substantial additional housing in the City during construction. Because of these conditions, the impact related to population growth and housing demand associated with project construction would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 4.8-2: Directly or indirectly induce substantial population growth during operation.

The project is not currently zoned for residential uses, although portions of the project are designated for residential uses in the City General Plan. Implementation of the project would include redesignation and rezoning of the project site. The project would not result in indirect population growth from removal of obstacles to growth or new job opportunities as the site is located adjacent to existing residential subdivisions and in close proximity to commercial and retail facilities. Population growth would be associated with the construction of 575 new single-family units; however, population growth resulting from this project would not be considered substantial compared to the City-wide population and future planned growth. This impact would be **less than significant**.

The project would generate housing-related population growth by adding 575 new market-rate residential units to the City's housing stock. As of 2010, the City had an average household size of 2.59 people (City of Lincoln). Based on this ratio, the addition of 575 single-family units at the site would increase population by 1,490 individuals. The estimated population generated by the project would represent an approximate increase of 3.2 percent compared to the current population. With consideration that the City currently plans to build approximately 11,208 units (City of Lincoln 2013), which is projected to increase the population by approximately 29,000 individuals, this increase is not substantial considering long-term planning for growth.

A proposed development can cause indirect population growth when it increases demand for services in an area that is currently underserved by such services. For example, a major residential subdivision developed in a rural area could indirectly induce additional population growth by increasing demand for nearby commercial and retail facilities (e.g., supermarkets, gas stations, restaurants, entertainment, employment centers), as well as public services (e.g., police stations, fire stations, schools, libraries, and water and sewer treatment facilities). All of these support uses require additional employees, which require additional housing and further increase population. A project can also indirectly induce indirect population growth by removing existing obstacles to development. An example would be extension of an oversized pipeline through vacant land, such that utility service is possible where it previously did not exist.

The project would include 2.7 acres of mixed-use development. Under the City of Lincoln General Plan, mixed-use development must not exceed a floor area ratio (FAR) of greater than 4.0 for non-residential uses (i.e., retail or service commercial, profession office, or recreational uses). Thus, it is anticipated that there would be a total floor area of approximately 64,500 square feet (4.0 / 2.6 acres). While it is unknown what types of units would be placed in the mixed-use area, if any, employee generation rate assumptions indicate that there could be approximately 115 to 230 additional job opportunities, depending on the proportion of retail or office uses (see Method of Analysis above for jobs to area ratios). This would result in a jobs-to-housing ratio of 0.2 to 0.4, which is slightly less than the current 0.5 jobs-to-housing ratio for the City as a whole. It should also be noted that commercial projects being constructed or in the approval process in the project area would also add job opportunities in the area. Current vacancy rates in Lincoln (i.e., six percent) and Placer County (i.e., 13 percent) indicates that there is not a substantial shortage in housing. That is, any

future employees associated with jobs within the mixed-use portion of the project site would likely live within the City of Lincoln or nearby communities in unincorporated Placer County. Furthermore, as of 2013, there are 3,171 extremely low, very low, and low-income residential units planned and 8,037 moderate and above moderate units planned. This is well in excess of the City's Regional Housing Needs Associations (1,621 extremely low, very low, and low residential units planned and 2,169 moderate and above moderate units; see Table 4.8-4). Thus, any new job opportunities resulting from the project would not be expected to substantially increase the City's population or result in the construction of new housing to accommodate new individuals.

The project would result in the extension of existing infrastructure (potable water pipelines, sewer lines, electrical lines, and natural gas pipelines) to serve the project site. The facilities would be sized to appropriately serve new residents and businesses that would be located within the project site and would not be oversized such that growth on adjacent land would be encouraged (see Section 4.9, Public Utilities, Services, and Water Supply). Furthermore, existing public services (e.g., police, fire, schools) are adequate to serve operation of the project (see Section 4.9, Public Utilities, Services, and Water Supply). Thus, the project would not remove an obstacle to growth such that areas outside of the project site could experience population growth. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

4.9 PUBLIC UTILITIES, SERVICES, AND WATER SUPPLY

This section of the EIR describes water supply; wastewater; solid waste; dry utilities (electricity and natural gas); public schools; and emergency medical, fire, and police services that would serve the Independence at Lincoln development. The capacity of these utilities to accommodate development of the project is evaluated. This section also includes an evaluation of energy conservation, consistent with Appendix F of the CEQA Guidelines. Storm drainage is evaluated in Section 4.6, "Hydrology, Drainage, and Water Quality."

4.9.1 Environmental Setting

WATER

The City of Lincoln (City) provides potable water to all residents and commercial customers within the city limits. Key services include: water distribution; water quality maintenance and testing; water leak/break repair; well water site maintenance and distribution; maintaining partnerships with Placer County Water Agency (PCWA), Nevada Irrigation District (NID), and other water distributor/wholesalers; collaboration with the State Water Resources Board and Regional Water Authority on regulations and enforcement; and execution of the approved 2010 Urban Water Management Plan.

Water is provided by PCWA (17 million gallons per day [mgd]) and four City-owned municipal wells (7 mgd). Water supplied by PCWA comprises the City's base water supply and is derived from PCWA and NID entitlement to surface water fed by the Sierra snowpack (City of Lincoln 2016). Water from PCWA is treated at PCWA's Foothill Water Treatment Plant and is then delivered to the City (Tully & Young 2016). The City's wells are used as back-up water supply (City of Lincoln 2016).

The City has a 2012 contract with PCWA for delivery of treated surface water that currently entitles the City to a maximum daily delivery of 18,501,424.5 gallons of PCWA water and includes opportunities for the City to purchase additional supplies. Current water deliveries are significantly lower than the full entitlement and there is substantial additional, unallocated capacity in PCWA's system (1.6 mgd in 2014). The City does not anticipate a need for more than about 20,000 acre-feet per year of treated surface water from PCWA to meet demands through 2040. The City also has rights to an additional 4.5 mgd of treatment capacity at the PCWA plant that it is not currently using. In addition, there was another 5.6 mgd of capacity available on a first-come-first-served basis in 2013. This capacity is sufficient to supply water to approximately 4,800 additional dwelling units (Tully & Young 2016).

NID also provides surface water to the City through a temporary water supply contract. The City is currently working with NID to ultimately receive approximately 12,000 acre-feet per year of treated water from NID facilities. No more than 4,000 acre-feet per year of water should be needed from NID through 2040 (Tully & Young 2016: 5-8).

Groundwater for the City is supplied by wells pumping from the North American Subbasin, which is part of the Sacramento Valley Groundwater Basin. The City currently limits groundwater use during normal years to 10 percent of its buildout demand. The area has currently and historically stable groundwater elevations and reliable water quality. The groundwater pumping system has a combined capacity of 8.5 mgd, or about 75 percent of the current maximum day demand, which is sufficient as an emergency supply for all but the hottest summer irrigation days (Tully & Young 2016: 4-4).

WASTEWATER

Wastewater Treatment and Reclamation Facility

The project site is the former location of the City's wastewater treatment facility, which was deactivated in 2004 after the City completed the construction and full activation of a new wastewater treatment and reclamation facility (WWTRF) approximately two miles southwest of the project site and southeast of the city on Fiddymont Road, between Athens Avenue and Moore Road. The City's current WWTRF is a public-private partnership between the City and private developers. The City maintains the collection system facilities that deliver sewage to the WWTRF, which provides secondary and tertiary treatment of municipal wastewater from all parts of the city. Wastewater is mainly collected via a gravity system; however, the system also includes several lift stations (City of Lincoln 2013). The WWTRF has expansion capacity up to 30 mgd for planned buildout and potential regional services. It is currently rated for 4.2 mgd; however, pending approvals, the dry weather capacity WWTRF will be increased to 5.9 mgd. Current dry weather flows from summer 2015 is 2.7MGD (Prosser, pers. comm., 2016).

Gravity Sewer & Reclaimed Water Facilities Project

The Chambers Drive and Nicolaus Road Sewer Improvement Project, a sewer facilities and roadway restoration that is a phase of the City's overall Gravity Sewer & Reclaimed Water Facilities Project, was completed in September of 2015 (Prosser, pers. comm., 2016). The overall project includes: sewer conversion from the City's old wastewater treatment plant to the new wastewater treatment plant; the addition of odor control equipment at the Nicolaus Road pump station; and de-commissioning of the Moore Road pump station.

SOLID WASTE DISPOSAL

Residential Garbage Collection

The Department of Public Services manages solid waste and green waste collection and disposal. With the exception of "cluster homes," which only have solid waste service because of space limitations, each home within the City is provided with one, 90-gallon can for garbage and recycling, and another 64- or 90-gallon container for green waste material. Garbage is collected weekly and green waste is collected bi-weekly (City of Lincoln 2016).

Western Regional Sanitary Landfill and Material Recovery Facility

Refuse from the project area is transported to the Western Placer Waste Management Authority's (WPWMA's) 316-acre Western Regional Sanitary Landfill (WRSL) adjacent to the intersection of Athens Avenue and Fiddymont Road, west of State Route 65. The WPWMA is a joint powers authority comprised of the cities of Rocklin, Roseville, and Lincoln, and Placer County. Both the WRSL and the associated Material Recovery Facility (MRF) operate under permits issued by the California Integrated Waste Management Board. The MRF separates and recovers waste products for recycling, reuse, or conversion to energy sources. Materials that cannot be recycled are taken to the landfill. The MRF can accommodate over 2,000 tons of garbage per day. Currently, the MRF diverts approximately 50 percent of the material received from going to the landfill, helping Placer County comply with a state-mandated recycling rate (WPWMA 2016). Total capacity of the WRSL is 36,350,000 cubic yards, and there is 23,789,423 cubic yards of capacity remaining (City of Lincoln 2016). WPWMA's regional landfill has an average annual throughput of 100,000 to 249,999 tons per year and an average annual capacity of 500,000 to 749,000 tons per year (CalRecycle 2015a). It is projected that the landfill has a lifespan extending to 2042 (City of Lincoln 2016).

ELECTRICITY AND NATURAL GAS

Electricity and natural gas are provided to the area by the Pacific Gas and Electric Company (PG&E). PG&E provides underground electric and natural gas service within all new subdivisions in the City of Lincoln according to City requirements (although the construction or reconstruction of overhead distribution facilities is periodically required to supply the underground circuits within new developments).

PUBLIC SCHOOLS

The project site is within the area served by the Western Placer Unified School District (WPUSD). WPUSD has a total of 11 schools, three of which currently serve the project area (i.e., Creekside Oaks Elementary, Glen Edwards Middle School, and Lincoln High School). Based on enrollment for the 2013-2014 school year, Creekside Oaks had remaining capacity for approximately 270 students, Glen Edwards Middle School had remaining capacity for approximately 420 students, and Lincoln High School had remaining capacity for approximately 225 students (WPUSD 2014: 30). However, according to WPUSD staff in 2015, Creekside Oaks Elementary has limited capacity to serve additional students, while Glen Edwards Middle School and Lincoln High School are at capacity (Adell, pers. comm., 2015).

FIRE PROTECTION AND EMERGENCY MEDICAL SERVICES

Fire protection is provided by City of Lincoln Fire Department (Fire Department). The Fire Department covers roughly 20 square miles with a population of approximately 45,000 residents from its three stations located throughout the city. Fire Station #34, which is located at 126 East Joiner Parkway and serves as the Fire Department's Headquarters, is the nearest fire station to the project site. In 2014, the Fire Department received 3,977 calls for service (City of Lincoln 2016). The Fire Department's independent Insurance Services Office (ISO) rating (a rating which can be used to assess the effectiveness of fire protection services) was most recently evaluated in September 2014, with a Public Protection Class 4 (ratings are made on a scale of 1 to 10, with 1 being the highest).

POLICE SERVICE

Law enforcement is provided by City of Lincoln Police Department (Police Department). The Police Department is divided into three divisions: The Administrative Division, the Operations Division and the Support Division. The Office of the Chief of Police makes up the Administrative Division and is responsible for overseeing the entire operation of the Police Department. The Operations division consists of two units: Patrol and Investigations. These units are directly responsible for the enforcement of local and state laws, investigation of criminal activity, and ensuring the safety of the citizens of the City of Lincoln. The Support Services division is composed of Communications, Records, Citizen Volunteers, Animal Control, and Property and Evidence. The goal of the Support Services Division is to maintain the day-to-day functions of the Police Department, manage the business aspect of the agency, data and record retention, and continually assess the needs of the department and city while implementing programs to enhance the experience of the Police Department for customers and employees alike. The Police Department has 20.5 sworn police officers based at the department's headquarters on 7th Street (less than 2 miles from the project site) (City of Lincoln Police Department 2015).

4.9.2 Regulatory Setting

FEDERAL

There are no federal regulations applicable to this analysis.

STATE

Senate Bill 610- Water Supply Assessment

Senate Bill (SB) 610 was adopted in 2001 and reflects the growing awareness of the need to incorporate water supply and demand analysis at the earliest possible stage in the land use planning process.

Public Resources Code (PRC) Section 21151.9 requires that a WSA be prepared for proposed projects as defined in the statute to ensure that long term water supplies are sufficient to meet the project's demands in normal, single dry and multiple dry years for a period of 20 years. Preparation of a WSA is required if a proposed action meets the statutory definition of a "project," which includes at least one of the following (California Water Code Section 20912(a)):

- ▲ a proposed residential development of more than 500 dwelling units;
- ▲ a proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space;
- ▲ a proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space;
- ▲ a proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area; or
- ▲ a mixed use project that includes one or more of the projects specified in the above bullets.

Completion of a WSA requires collection of proposed water supply data and information relevant to the project in question, an evaluation of existing/current use, a projection of anticipated demand sufficient to serve the project for a period of at least 20 years, delineation of proposed water supply sources, and an evaluation of water supply sufficiency under single year and multiple year drought conditions.

Senate Bill 221- Written Verification of Water Supply

Government Code section 66473.7(a)(1) requires an affirmative written verification of sufficient water supply. Senate Bill 221 is designed as a "fail-safe" mechanism to ensure that collaboration on finding the needed water supplies to serve a new large subdivision occurs early in the planning process. This verification must also include documentation of historical water deliveries for the previous 20 years, as well as a description of reasonably foreseeable impacts of the proposed subdivision on the availability of water resources of the region.

Government Code section 66473.7(b)(1) states "The legislative body of a city or county or the advisory agency, to the extent that it is authorized by local ordinance to approve, conditionally approve, or disapprove the tentative map, shall include as a condition in any tentative map that includes a subdivision a requirement that a sufficient water supply shall be available. Proof of the availability of a sufficient water supply shall be requested by the subdivision applicant or local agency, at the discretion of the local agency, and shall be based on written verification from the applicable public water system within 90 days of a request."

In other words, as a result of the information contained in the written verification, a city or county may attach conditions to assure there is an adequate water supply available to serve the proposed project as part of the tentative map approval process. Written verification will be a condition of approval for the Independence at Lincoln Tentative Maps.

California Water Code

According to Section 10910 of the California Water Code (referenced in CEQA Guidelines Section 15155), lead agencies (in this case, the City of Lincoln), are required to identify the public water system(s) that would serve a project and assess whether the water supply is sufficient to provide for projected water demand associated with a project when existing and future uses are also considered. A lead agency must condition approval of a subdivision of certain sizes upon “a requirement that a sufficient water supply shall be available” (Government Code Section 66473.7 [b][1]). This verification, like the water supply assessment (WSA) required under CEQA (Section 15155), must include documentation of historical water deliveries for the previous 20 years, as well as a description of reasonably foreseeable impacts of the proposed subdivision on the availability of water resources of the region. As a result of the information contained in the written verification, the City may attach conditions to assure there is an adequate water supply available to serve the proposed project as part of the tentative map approval process.

California Model Water Efficient Landscape Ordinance

The California Model Water Efficient Landscape Ordinance (MWELo) sets restrictions on outdoor landscaping. Because the City of Lincoln is a “local agency” under the MWELo, it must require project applicants to prepare plans consistent with the requirements of the MWELo for review and approval by the City. The MWELo was most recently updated by the Department of Water Resources and approved by the California Water Commission on July 15, 2015. All provisions became effective on February 1, 2016. The revisions, which apply to new construction with a landscape area greater than 500 square feet, reduced the allowable coverage of high-water-use plants to 25 percent of the landscaped area. The MWELo also requires use of a dedicated landscape meter on landscape areas for residential landscape areas greater than 5,000 square feet or non-residential landscape areas greater than 1,000 square feet, and requires weather-based irrigation controllers or soil-moisture based controllers or other self-adjusting irrigation controllers for irrigation scheduling in all irrigation systems.

California Green Building Standards Code

Construction Waste Reduction Requirements

The California Green Building Standards Code (CALGreen) requires builders/owners to divert 50 percent of the waste from covered projects. This can be met through three methods: 1) develop and submit a waste management plan to the jurisdiction’s enforcement agency that identifies materials and facilities to be used and document diversion, 2) use a waste management company, approved by the enforcing agency, that can document 50 percent diversion, or 3) use the disposal reduction alternative, as appropriate for the type of project. If the waste management plan option is used, the plan should be developed before construction begins, and project managers should use the project’s planning phase to estimate materials that will be generated and identify diversion strategies for those materials. The California Department of Housing and Community Development has developed suggested methods and compliance forms as options for residential builders and owners to demonstrate compliance with the 50 percent or greater construction waste reduction requirement.

Building Energy Efficiency Standards

Energy consumption of new buildings in California is regulated by State Building Energy Efficiency Standards contained in the California Code of Regulations, Title 24, Part 2, Chapter 2-53. Title 24 applies to all new construction of both residential and nonresidential buildings, and regulates energy consumed for heating, cooling, ventilation, water heating, and lighting. The 2013 Building Energy Efficiency Standards have improved efficiency requirements from previous codes and the updated standards are expected to result in a statewide energy consumption reduction. Specifically, the 2013 Building Energy Efficiency Standards require 25 percent and 30 percent more energy efficiency compared to the 2008 Building Energy Efficiency Standards for residential and nonresidential construction, respectively.

CEC adopted the 2016 Building Energy Efficiency Standards in 2015. The 2016 Title 24 standards will go into effect on January 1, 2017. For purposes of single-family residences, the 2016 Title 24 standards will result in about 28 percent less energy use for lighting, heating, cooling, ventilation and water heating than

the 2013 Title 24 standards (CEC 2015). Data regarding the comparative efficiencies of the 2016 Title 24 standards relative to the 2013 Title 24 standards are not yet available for all building types (e.g., multi-family residences; commercial buildings).

CALGreen establishes mandatory minimum green building standards and includes more stringent optional provisions known as Tier 1 and Tier 2. Cities and counties, at their discretion, may adopt Tier 1 or Tier 2 as mandatory or adopt and enforce other standards that are more stringent than the CALGreen Code. Placer County has adopted several modifications to both the residential and non-residential CALGreen mandatory sections.

Leroy F. Greene School Facilities Act

The Leroy F. Greene School Facilities Act (Act) places limitations on cities and counties with respect to mitigation requirements for school facilities. The Act permits school districts to levy fees, based on justification studies, for the purposes of funding construction of school facilities, subject to established limits. The limits were set in 2000, can be adjusted annually for inflation, and can be leveled based on the square footage of residential (up to \$1.93 per square foot in 2000) and commercial-industrial square footage (up to \$0.31 per square foot in 2000). The Act further states that payment of these fees by a development project is considered adequate to reduce impacts of that project on schools to a less-than-significant level for the purposes of CEQA review and compliance.

LOCAL

City of Lincoln General Plan

The following policies in the Public Facilities and Services, Open Space and Conservation, and Land Use Element of the City of Lincoln General Plan (City of Lincoln 2006) would be applicable to the project.

- ▲ **Policy PFS-1.1:** The City shall ensure the provision of adequate public services and facilities to the existing areas of the city and to ensure that new development is served by a full range of public services.
- ▲ **Policy PFS-1.3:** During the development review process, the City shall not approve new development unless the following conditions are met:

 - the applicant can demonstrate that all necessary infrastructure will be installed or adequately financed;
 - infrastructure improvements are consistent with City infrastructure plans; and
 - infrastructure improvements incorporate a range of feasible measures that can be implemented to reduce public safety and/or environmental impacts associated with the construction, operation, or maintenance of any required improvement.
- ▲ **Policy PFS-2.3:** The City shall require the availability of an adequate water supply to be demonstrated before approving new development.
- ▲ **Policy PFS-2.9:** The City shall condition new development on availability of storage that meets the following parameters:

 - Equalizing Storage (for meeting peak flows) - 25 percent of maximum day demand.
 - Fire Reserve - Provide fire reserve as required by the Insurance Services Office (ISO) or as required by the City Fire Chief and City Engineer.
 - Emergency Reserve - 33 percent of the total of Equalizing Storage and Fire Reserve.

- ▲ **Policy PFS-2.10:** The City shall provide water supply, storage and adequately-sized pipelines to provide fire flows at any point within the City to meet recommendations of the ISO and/or the City Fire Chief and City Engineer and maintain minimum pressures in accordance with requirements outlined in the California Department of Health Services / Waterworks Standards.
- ▲ **Policy PFS-2.13:** The City may allow use of connection fees for improving and upgrading offsite facilities as appropriate and to support the overall system integrity necessary to serve the new development.
- ▲ **Policy PFS-2.14:** The City shall require new development to be responsible for construction of water transmission and distribution lines less than 18 inches in diameter. Provision will be made allowing reimbursement from Third Parties should such lines result in an “over-sizing” for a particular development.
- ▲ **Policy PFS-2.17:** The City shall require new development to use the best available technologies (BAT) for water conservation, including, but not limited to water-conserving water closets, showerheads, faucets, and water conserving irrigation systems.
- ▲ **Policy PFS-5.1:** The City shall require solid waste collection services for existing and new developments to ensure the maintenance of health standards.
- ▲ **Policy PFS-5.2:** The City shall promote maximum use of solid waste reduction, recycling, and composting of wastes for a reduction in residential, commercial, and industrial waste disposal.
- ▲ **Policy PFS-8.2:** The City shall expand fire protection services as needed to meet fire response times.
- ▲ **Policy PFS-8.4:** The City shall strive to maintain a firefighting capability sufficient to maintain a fire response time of five (5) minutes or less as a general guideline for service provision and locating new fire stations.
- ▲ **Policy PFS-8.5:** The City shall provide fire station facilities, equipment (engines and other apparatus), and staffing necessary to maintain the City’s service standards (ISO rating and response time).
- ▲ **Policy PFS-8.6:** The City shall require all new developments to provide adequate emergency access features, including secondary access points.
- ▲ **Policy PFS-8.8:** The City shall expand police protection service consistent with community needs and provide an adequate level of service.
- ▲ **Policy PFS-8.11:** For purposes of defining capital facilities investment for police facilities, the City shall base facility needs on a staffing ratio of 1.8 officers per 1,000 population.
- ▲ **Policy PFS-8.14:** The City shall strive to maintain an average response time of five minutes or less for priority one calls.
- ▲ **Policy PFS-9.1:** The City shall ensure that in areas of new development, school facilities meeting adopted school district standards will be available.
- ▲ **Policy PFS-9.7:** The City shall coordinate with the school district that adequate developer fees are collected in accordance with state law.
- ▲ **Policy PFS-9.9:** To the extent allowed by State law, the City will require new projects to mitigate impacts on school facilities, which could occur through a combination of new school site dedications and the use of developer fees. The City will also work with school districts, developers, and the public to evaluate alternatives to funding/providing adequate school facilities.

- ▲ **Policy OSC-3.1:** The City shall require the use of energy conservation features in new construction and renovation of existing structures in accordance with state law. New features that may be applied to construction and renovation include; Green building techniques (such as use of recycled, renewable, and reused materials; efficient lighting / power sources; design orientation; building techniques; etc.); and Cool roofs.
- ▲ **Policy OSC-3.14:** The City will include energy planners and energy efficiency specialists in appropriate pre-application discussions with property owners and developers to identify the potential for solar orientation and energy efficient systems, building practices and materials.
- ▲ **Policy LU-11.3:** The City shall require that all outdoor light fixtures, including street lighting, externally illuminated signs, advertising displays, and billboards, use low energy, shielded light fixtures that direct light downward (i.e., lighting shall not emit higher than a horizontal level). Up-lighting of architectural features or landscaping can be allowed in compliance with the California Title 24 Energy Standards (as amended) and based on City design review. Additionally, the City shall continue to improve and maintain proper lighting in park facilities and fields without undue nuisance light and glare spillage on adjoining residential areas. Where public safety would not be compromised, the City shall encourage the use of low intensity lighting for all outdoor light fixtures.

Regional Housing Needs Plan

State law (California Government Code Section 65584) requires that each City and County plan to accommodate its fair share of the region's housing construction needs. In urban areas, state law provides for councils of governments to prepare regional housing allocation plans that assign a share of a region's housing construction need to each member jurisdiction. In the six-county Sacramento region (including the counties of Sacramento, Placer, El Dorado, Yolo, Sutter, and Yuba), the Sacramento Area Council of Governments (SACOG), is the entity authorized to determine future housing needs. SACOG adopted a regional housing allocation plan in September 2012, the Regional Housing Needs Plan (RHNP). The RHNP covers January 1, 2013 to October 31, 2021. According to the RHNP, Lincoln has a total housing need of 3,790 units (approximately 44 percent of which is for units affordable to lower-income households). The City of Lincoln's current Housing Element is based on 2007 SACOG projections that the number of households in the city would increase 108 percent between 2010 and 2035 (City of Lincoln 2013).

Western Placer County Groundwater Management Plan

The Western Placer County Groundwater Management Plan, a cooperative effort between the Cities of Roseville and Lincoln, as well as PCWA, was adopted by the City of Lincoln in December of 2007. The plan includes objectives related to management of the groundwater basin to protect groundwater quality, maintain groundwater elevations, prevent adverse effects on surface water, and ensure groundwater recharge. The plan is consistent with the City's 2003 Groundwater Management Plan.

4.9.3 Environmental Impacts and Mitigation Measures

ANALYSIS METHODOLOGY

The following analysis of provision of public services and utilities assumes that the project would increase the City of Lincoln's population by 1,489 people, based on the average household size of 2.59 individuals reported in the 2010 US Census and used in the preparation of the City's current Housing Element (Lincoln 2013) and service ratios, where available.

A portion of the project site is listed in the City of Lincoln 2013-2021 Housing Element Background Report as planned or entitled land for which there is existing infrastructure capacity (see Table A-39 and Appendix C of the Housing Element Background Report). Further, according to the Housing Element Background Report (City of Lincoln 2013), the City charges appropriate development impact fees to ensure that water lines, sewer lines, roads, and other necessary infrastructure can be extended in a timely manner upon the

issuance of necessary development permits. Because the project site is in an area where development has been anticipated by the City, it is generally assumed that payment of standard impact fees would adequately address the cost of any offsite infrastructure improvements necessary to support the development.

Water

The effects of increase demand for water are quantitatively evaluated using information provided in the WSA prepared for the site (Appendix E). Estimated water demand is compared to existing entitlements to determine if adequate water supply is available to serve the project. Other currently proposed projects are anticipated and represent approximately 10,337 acre-feet per year of new demand by 2040, based on the detailed analysis completed in the recent City Water Master Planning effort (Tully and Young 2016: 3-6).

The WSA included an assessment of projected water demand (see Table 2-3 in Appendix E) in yearly increments from current year (2016) through 2019 and in 5-year increments from 2020 through 2040. While the analysis at various intervals before build-out of the project is important, the most critical projection for the sufficiency analysis occurs in 2040, because it demonstrates that water supplies are available for the project and all other existing and planned development through that time period. The analysis assumes that the project is fully constructed in line with the Specific Plan, well before 2040 (i.e., by 2020). Early phases of the project would include site grading and infrastructure installation. These and other construction elements would require dust suppression and other incidental water uses. These are estimated to be nominal, and would not continue beyond the construction phases of the project. For purposes of identifying incremental water demands in the WSA, construction water was assumed to be 1 acre-foot per year (this is about 325,000 gallons – or over 81 fill-ups of a 4,000-gallon water truck).

The total water demand for residential land use consists of both indoor and outdoor water use factors. The assessment of indoor residential water use assumes that residential elements of the project would be built in accordance with all applicable, then-current building codes, including the CALGreen Code discussed previously. Because a vast majority of the existing customers are in homes built within the last decade, the current and future indoor unit demand factor is assumed to be nearly equivalent, even with the additional drivers such as the CALGreen Code. Demand for the City's existing service area for newer houses is approximately 0.46 acre-feet per dwelling unit annually.

The primary factor driving outdoor water use on a per lot basis is the size of the lot and square footage of landscaping. The project includes several residential lot types, each having a unique proposed housing layout and landscaped area. The plantings are intended to consist of low-water, drought-tolerant, and native plants. To provide flexibility for the project, to landscape lots as needed, and to provide a conservative assumption for this analysis, each lot is assumed to have a landscaped area equal to the lot square footage minus the house footprint and an amount of hardscaping corresponding with existing similar houses within the City. The remaining area of each lot is conservatively assumed to demand the maximum allowed by the MWEL0. However, this provides for a conservative analysis since the landscaping goals set forth in the Specific Plan would likely result in a lower outdoor residential water demand than is estimated by the project WSA because of actions taken by developers and end users to be more water efficient. Based on lot size, the WSA classifies 122 of the lots as low density residential and 453 as medium density residential. The low-density residential is assumed to have an operational demand for irrigation water of 0.31 acre-feet per dwelling unit and the medium density residential is assumed to have an operational demand for irrigation water of 0.28 acre-feet per dwelling unit. Although irrigation demands could be met through recycled water at some point in the future, for the purpose of this analysis, it is assumed that all water demand would be met with potable water.

Demand factor assumptions for other land uses on the project site include: 0.99 acre-feet per acre of commercial, office, and professional space; 2.80 acre-feet per acre for public and quasi-public and uses; 3.55 acre-feet per acre for park areas; and 0.19 acre-feet per acre for rights-of-way. Water demand factors for the 46 acres of open space were conservatively based on the City's landscape demand of 3.73 acre-feet per acre. The WSA assumes that half of this area would require irrigation for plant establishment starting in 2016, with the remaining half starting the next year in 2017.

The WSA calculations also include non-revenue water. Non-revenue water represents all of the water necessary to deliver to the customer accounts and reflects distribution system leaks, water demands from potentially un-metered uses such as fire protection, hydrant flushing, and unauthorized connections, and inescapable inaccuracies in meter readings. Because a significant portion of the delivery system used to bring water to the project would be new, the percentage of non-revenue water is estimated to meet the 10 percent goal set forth by the American Water Works Association.

Wastewater

A generation rate of 200 gpd per single-family household was used to estimate the wastewater generated by the project. The estimated wastewater generation is compared to existing entitlements to determine if there is existing capacity to serve the project. Because the disposition of Lot H (a 2.7-acre mixed-use area which would provide flexibility for either multi-family residential or neighborhood commercial development) is unknown, it is assumed that this area would be built out with the maximum number of residential units (58) allowable at the site, which would provide the most conservative (i.e., highest wastewater generation) that could occur on the site.

Solid Waste Disposal

The assessment of solid waste impacts is a quantitative analysis of the existing services available to the project site and a determination of whether project includes adequate provisions to ensure continued service that meets acceptable standards. The solid waste generation rate used in this analysis is based on the statewide average generation rate of 4.5 pounds per resident (CalRecycle 2015b). Because the disposition of Lot H is unknown, it is assumed that this area is built out with the maximum number of residential units (58) allowable at the site, which would provide the most conservative (i.e., highest solid waste generation) that could occur on the site.

Energy Use

Implementation of the project would increase demands for electricity and natural gas and would require connections to existing utility lines in the area. The Public Utilities Commission obligates PG&E to maintain the capacity to provide energy to planned developments. Because development of the project site was included as part of previous and current local and regional planning efforts, which PG&E incorporates into its assessment of infrastructure needs, it is anticipated that there would be adequate service available to meet the demand generated by the project. The City's ongoing development review process includes a review and comment opportunity for privately-owned utility companies, including PG&E, to allow for informed input from each utility company on all development proposals. The input facilitates a detailed review of all projects by service purveyors to assess the potential demands for utility services on a project-by-project basis. The ability of PG&E to provide its services concurrently with each project is evaluated during the development review process.

Appendix F of the State CEQA Guidelines requires consideration of the potentially significant energy implications of a project. CEQA requires mitigation measures to reduce "wasteful, inefficient and unnecessary" energy usage (Public Resources Code Section 21100, subdivision [b][3]). However, neither the law nor the State CEQA Guidelines establish thresholds that define wasteful, inefficient, or unnecessary use. Therefore, this section includes a qualitative discussion of the potential for the project to result in the inefficient or wasteful consumption of energy.

Public Schools

The analysis of potential effects on school service ratios is based on the information provided in the *Western Placer Unified School District: 2016 School Facility Fee Justification Report* (WPUSD 2016).

Fire Protection and Emergency Medical Service

The analysis assumes the firefighter to resident ratio of 1.26 firefighters per 1,000 residents and 917 square feet of fire station facilities per firefighter to determine the potential for the project to affect service ratios (City of Lincoln 2016).

Police Services

Based on the standards adopted by the City in General Plan Policy PFS-8.11, Provisions of Police Facilities, the analysis assumes 1.87 officers and 0.4 non-sworn staff per 1,000 residents and 475 square feet per police department staff to determine the potential for the project to affect service ratios.

THRESHOLDS OF SIGNIFICANCE

The project would result in a potentially significant impact on public services, public utilities, and water supply if it would:

- ▲ not meet wastewater treatment requirements of the applicable Regional Water Quality Control Board;
- ▲ require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could result in significant environmental effects;
- ▲ require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- ▲ not have sufficient water supplies available to serve the project from existing entitlements and resources;
- ▲ result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- ▲ be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs in compliance with all applicable laws;
- ▲ not comply with federal, state, and local statutes and regulations related to solid waste;
- ▲ result in inefficient and wasteful consumption of energy during construction or operations or require new or expanded energy facilities that could cause significant environmental effects;
- ▲ result in substantial adverse physical impacts associated with the provision of new or physically altered governmental services and/or facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for:
 - fire protection
 - sheriff protection,
 - schools,
 - maintenance of public facilities, including roads, or
 - other governmental services.

POTENTIAL EFFECTS NOT ANALYZED FURTHER

As identified in Chapter 3, "Project Description," the project includes improvements to various utility systems to serve the development. These improvements, as part of the project, are part of the action analyzed in this Draft EIR. The environmental effects of installing and operating these improvements are disclosed as appropriate in each environmental analysis chapter. For example, the impacts to biological resources associated with constructing and operating infrastructure improvements are identified and analyzed in Section 4.4, "Biological Resources." Similarly, as stated above, it is assumed that any new offsite facilities that would benefit the overall service area would be constructed by the City and would undergo separate environmental review for potential environmental impacts. Therefore, criteria related to significant environmental effects from construction of new infrastructure are not addressed further in this chapter.

Stormwater drainage facilities are analyzed in Section 4.6, “Hydrology, Drainage and Water Quality.” Impacts to recreation resources were determined to be less than significant in the Initial Study and are not analyzed further in this Draft EIR.

IMPACT ANALYSIS

Impact 4.9-1: Increased demand for potable and irrigation water.

Through a combination of surface and groundwater supplies, adequate water supplies would be available to meet the project’s demands and all other demands within the City during all water year types through 2040. While additional water supply infrastructure has been identified to meet the City’s growth and water demand projections, PCWA and the City are on-track with planning and implementation of surface water agreements and infrastructure projects to ensure adequate water supplies and distribution infrastructure are commissioned in advance of need. With planned expansion of surface water infrastructure, groundwater would be used to meet no more than 10 percent of the project’s annual water demands during normal years and consistent with City goals. Furthermore, as a condition of approval for project tentative maps, the City shall require written verification demonstrating that there is sufficient water supply as required by Government Code Section 66473.7(a)(1). The applicant’s payment of development impact fees would also fund the project contribution to the need for planned water infrastructure improvements. Therefore, because adequate supplies and infrastructure are available, the project’s increased demand for potable and irrigation water would be **less than significant**.

The preliminary water plan layout is illustrated in Exhibit 3-7 in Chapter 3, “Project Description.” The project would include offsite construction associated with domestic water connections to the existing water facilities located in Nicolaus Road and Waverly Drive. Onsite, water would be supplied via 8-inch water lines located in the rights-of-way of the proposed residential streets. As established in General Plan Policy PFS-2.14, the applicant or developer would be responsible for construction of the water lines within the project site.

As directed by the City, a domestic water well would be constructed in the southwest corner of the project site (i.e., within Lot 4). The City would oversee construction, operation, and maintenance of the well at a future date, which would expand the City’s existing groundwater system.

State regulations require the lead agency to verify that sufficient water supply is available to serve proposed development. Approval of the project WSA would be considered prior to certification of the EIR and approval of the project. The General Plan provides that the City shall not approve new development unless the availability of an adequate water supply is demonstrated (Policy PFS-2.3). The City also conditions new development on the availability of storage to meet established requirements for equalizing storage, fire reserves, and emergency reserves (General Plan Policy PFS-2.9). The project would be required to incorporate best available technologies for water conservation, including water-conserving showerheads, faucets, and irrigation systems, consistent with CALGreen and General Plan Policy PFS-2.17.

Project water demands would be met with a combination of surface water and groundwater. Treated surface water from PCWA would be the primary source of water. Consistent with the City’s goal, groundwater would be used to meet no more than 10 percent of the project’s annual water demands during normal years – an average value when considering the need to provide backup, emergency and peak day water supplies to appropriately manage surface water deliveries.

The WSA estimates total water demands from current customer use, projects underway and other proposed projects, adjusted general plan land use projections, and the project. Combining the estimated project water demand of 241 acre-feet annually with the estimated existing and planned future water demands of approximately 20,095 acre-feet annually, the total estimated demand for City water supplies by 2040 is calculated to be 20,336 acre-feet annually (Tully & Young 2016: 3-6). The WSA concludes that sufficient

water would exist to meet all current and projected water demands through 2040 during normal, single-dry, and multiple-dry years.

As set forth in SB 221, condition of approval of Tentative Maps for the project would be required to include written verification demonstrating adequate water supply is available to serve the proposed project. This would ensure that adequate water supply is available at the time that each component of the project is constructed.

The City of Lincoln is working closely with PCWA and NID to implement short-term and long-range infrastructure projects to meet the City's water demand projections throughout implementation of the City's General Plan, which includes the project. PCWA has reflected the City's growth and water demand projections in its implementation of water infrastructure projects (i.e., transmission mains, water treatment plants, water rights, etc.). To meet the City's growth projections anticipated in the General Plan, PCWA and the City are on-track with implementation of projects to ensure adequate water supplies and distribution infrastructure are commissioned in advance of need.

As discussed in the project WSA, PCWA indicated in a March 2016 letter that unused capacity in their existing treatment plants could be used by the City to meet future growth needs. This is estimated to be about 4.5 mgd that the City currently has rights to but is not using. As of this year (2016), an additional 3.86 mgd is available, on a first come first serve basis, in PCWA's existing facilities (Tully & Young 2016: 5-11 and 5-12).

PCWA is required to deliver raw water to its treatment plants prior to treating and delivering the water to the City. The PCWA's Ophir Pipeline Project, constructed in 2014, will enable PCWA to deliver an additional 22,000 AF from the American River to its treatment facilities (Tully & Young 2016: 5-12).

It should be noted that there is sufficient capacity in existing PCWA transmission mains to deliver all of the City's current contract water (18.5 MGD), plus at least another 5 MGD of additional capacity. The City's distribution system has a physical limitation to receive water in excess of 17.7 MGD until completion of the Phase 3 Pipeline and Metering Station, which provides a secondary point of connection for the City distribution system to PCWA transmission mains. This project is anticipated to be operating by January 2018, prior to buildout of the project.

Water service would be provided by the City of Lincoln, through its partnership with PCWA. PCWA does not reserve water for specific projects. Commitments for service are made only upon the execution of a pipeline extension or service order agreement to construct any necessary on- or offsite pipelines or other facilities and the payment of all required fees, including the Plant Expansion and Replacement Charges. In Lincoln, payment of such fees occurs in conjunction with building permits.

The WSA demonstrates that adequate water supply would be available to serve the project and other existing and planned future water demands. As a condition of approval for project tentative maps, the City shall require written verification demonstrating that there is sufficient water supply as required by Government Code Section 66473.7(a)(1). Further, adequate treatment and distribution infrastructure is available or would be available prior to buildout of the project. Therefore, the increased demand for potable and irrigation water associated with the project would be a **less-than-significant** impact.

Impact 4.9-2: Increased demand for wastewater collection, conveyance, and treatment.

The wastewater generated by the project would not exceed the current capacity of the WWTRF, and the project applicants would be required to pay applicable assessment fees toward operation and maintenance of the WWTRF. This would be a **less-than-significant** impact.

The project includes 8-inch sewer lines in the rights-of-way of the proposed residential roads, as well as a sewer lift station (which would be located on Lot L in Area 5, at the southern boundary of the project site; see Exhibit 3-6 in Chapter 3, "Project Description"). Sewer service would be provided by the City of Lincoln.

Although the project would generate additional demand for wastewater collection, conveyance, and treatment, the recently completed Chambers Drive and Nicolaus Road Sewer Improvement Project and WWTRF would provide sufficient capacity to serve the project. Conveyance of wastewater to the WWTRF would ensure that wastewater generated by the project meets the Regional Water Quality Control Board's treatment requirements because the WWTRF maintains applicable permits for the treatment of wastewater separate from this project.

Assuming 200 gpd for each of the proposed 575 single-family residences, plus an additional 58 units on Lot H, the project would produce 126,200 gallons of wastewater from the residential aspect of the proposal. The WWTRF can treat dry weather flows of 4.2 mgd, and currently treats an average daily dry weather flow of approximately 2.7 mgd. The wastewater generated by the project would increase average daily dry weather flows to approximately 2.8 mgd at the City WWTRF. According to the Background Report prepared for the 2013-2021 Housing Element (City of Lincoln 2013), there is more than adequate capacity at the treatment plant to serve build-out of anticipated residential development in the city, and the distribution system operates at acceptable levels and has been designed to accommodate expansions and service extensions. Because this would not exceed the current capacity of the plant, and the project applicant would be required to pay applicable assessment fees toward operation and maintenance of the WWTRF, this is considered a **less-than-significant** impact.

Mitigation Measures

No mitigation is required.

Impact 4.9-3: Generation of solid waste that exceeds the capacity of the Western Regional Sanitary Landfill.

While solid waste would be generated during construction and operation of the project, the WRSL has sufficient capacity to serve the proposed development. This impact would be **less than significant**.

Project construction activities would generate solid waste, including excess construction materials and material removed during site clearing. However, the site is generally vacant, and construction would not require demolition of existing structures or removal of large quantities of waste. It is anticipated that compliance with the construction waste requirements in CALGreen would be sufficient to address the potential for construction of the project to produce excessive quantities of solid waste that could affect the capacity of the local landfill.

During operation of the project, the residences would produce solid waste that would be collected by the City and transferred to the WRSL. Based on a waste generation rate of 4.5 pounds per person per day and 1,639 residents (1,489 for the residential aspect of the project and 150 for Lot H), the project is expected to produce approximately 1,221 tons of solid waste annually. Given that the average annual capacity of the landfill is approximately 400,000 tons more than the average annual throughput, it is reasonable to conclude that the landfill has sufficient permitted capacity to accommodate the project's solid waste disposal needs in compliance with all applicable laws based on the calculated residential waste generation rate.

Solid waste collection services for the City are funded through an enterprise fund. Costs for operation services (containers, bins, trucks, loaders, and street sweepers) are funded by various fees and charges collected by the City through its utility billing for solid waste collection. As development occurs in the service area, revenue is generated to finance the expansion of operational services through fees generated by new utility customers. All new development must participate in the funding of needed facilities and equipment based on adopted program standards. These costs are spread over new development based on an equivalent dwelling unit factor such that capital facilities costs are equally borne by residential and nonresidential development.

Therefore, based on available capacity and the established funding mechanisms in place for continued service, impacts related to generation of solid waste would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 4.9-4: Result in inefficient and wasteful consumption of energy.

Although construction and operation of the project would result in the consumption of energy, energy use would not be inefficient or wasteful when compared to similar projects in the State. Standard construction practices and compliance with 2016 Title 24 energy efficiency standards, coupled with project design and location would be sufficient to ensure that the potential for inefficient or wasteful consumption of energy would not occur and this impact would be **less than significant**.

Energy would be required to construct project elements, operate and maintain construction equipment, and produce and transport construction materials. The one-time energy expenditure required to construct the physical infrastructure associated with the project would be non-recoverable. Most energy consumption would result from consumption of fossil fuels associated with operation of construction equipment. Standard construction practices discourage unnecessary idling and the operation of poorly maintained equipment. There are no unusual project characteristics that would necessitate the use of construction equipment that would be less energy efficient than those used at comparable construction sites in other parts of the State. However, implementation of *Mitigation Measure 4.2-1a: Reduce short-term construction-related NO_x emissions* (see Section 4.2 of this EIR) would require the applicant to demonstrate use of energy efficient heavy-duty (> 50 horsepower) off-road vehicles (i.e., resulting in a project wide fleet-average 20 percent reduction in NO_x emissions), use of clean energy, and measures to minimize idling time during construction. The energy used for project construction would not require significant additional capacity or significantly increase peak or base period demands for electricity and other forms of energy.

The incremental increase in the use of energy bound in construction materials such as asphalt, steel, concrete, pipes and manufactured or processed materials such as lumber and gas would not substantially increase demand for energy compared to overall local and regional demand for construction materials. Further, construction materials would not be used in a wasteful manner to reduce project construction costs. Energy efficiency is also expected for the off-site production of construction materials, based on the economic incentive for efficiency. Non-renewable energy would not be consumed in a wasteful, inefficient, or unnecessary manner when compared to other construction sites in the region. Per Policy OSC-3.1 of the City's General Plan, the City shall require use of energy conservation features for construction in accordance with state law. New features that may be applied to construction include green building techniques (e.g., use of recycled, renewable, and reused materials; efficient lighting / power sources; design orientation; building techniques; etc.) and cool roofs.

Compliance with California's 2016 Title 24 Energy Efficiency Standards would generally promote energy efficiency of structures during operation of the project. All new buildings in California must meet the standards contained in Title 24 on the date a building permit application is made, and energy efficiency requirements are enforced by local governments through the building permit process. Minimum efficiency standards for household appliances; water and space heating and cooling equipment; and insulation for doors, pipes, walls and ceilings would ensure that the proposed project would not use energy in a wasteful manner. Policy OSC-3.14 would require the City to include energy planners and energy efficiency specialists in appropriate pre-application discussions with the applicant to identify the potential for solar orientation and energy efficient systems, building practices and materials.

Based on annual greenhouse gas emission calculations associated with estimated electricity use for operation of the project at full buildout (i.e., 947 metric tons of carbon dioxide equivalents per year [see Section 4.3, Table 4.3-2 of this EIR]), an estimated 4,481 MWH/year of electricity would be generated as a result of the project. The emission calculations used include the application of existing regulations pertaining to building standards and electricity generation. Consistent with the City's General Plan policies, the project

would meet Title 24 Energy Standards (Policies LU-11.3 and OSC-3.15) and would only install natural gas fireplaces in residential units (Policy HS- 3.11).

Fuel consumption associated with vehicle trips generated by the project would not be considered inefficient, wasteful, or unnecessary in comparison to other similar developments in the region. The project is located in a relatively accessible location where additional development is anticipated in planning documents. Based on estimated vehicle trips (5,900 daily vehicle trips) the project would generate during operation (Fehr & Peers 2016), diesel consumption is estimated at 108,150 gallons/year and gasoline consumption is estimated at 416,982 gallons/year. State and federal regulations regarding fuel efficiency standards for vehicles in California are designed to reduce wasteful, unnecessary, and inefficient use of energy for transportation. The project would include pedestrian sidewalks and trails, which promote non-auto travel. The inclusion of parks and open space areas would also reduce the energy consumption related to vehicle miles traveled by providing walkable and bikeable access to outdoor recreation facilities. As discussed further in Section 4.3, "Greenhouse Gases and Climate Change," the project would meet the GHG efficiency standard established in the 2020 statewide GHG emissions.

With the incorporation of standard energy efficiency practices, the project would not be expected to result in inefficient or wasteful consumption of energy. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 4.9-5: Result in the need for expanded school facilities.

The project would generate an estimated 333 new students, which would exceed the capacity of existing schools. The project applicant and/or developer(s) would be required to contribute funding to school facilities pursuant to the Leroy F. Greene School Facilities Act. Payment of such fees is considered sufficient to avoid a significant impact under CEQA. Therefore, this impact would be **less than significant**.

Funding for new school construction is provided through state and local revenue sources. The project applicant and/or developer(s) would be required to contribute funding to school facilities. The specific requirements would be set forth in the Development Agreement for the project.

The Leroy F. Greene School Facilities Act allows the district to collect additional fees that approximate 50 percent of the cost of new school facilities. The collection of the 50 percent mitigation fees is based on the assumption that the State School Facility funding program remains intact and that state funds are available for partial funding of new school facilities. Although school impact fees might not be sufficient to fund 100 percent of new school facility construction and operation, the California State Legislature has declared the school impact fee to be full and adequate mitigation under CEQA.

Pursuant to Section 65995.5–7 of the California Government Code, the WPUCD has imposed Level 1 residential developer fees at the current rate of \$3.48 per square-foot of new residential construction, and \$0.56 per square foot of commercial/industrial space (WPUCD 2016). In addition to collecting Level I fees at the time of building permits, the City would certify that school facilities meeting adopted school district standards are available for the development (General Plan Policy PFS-9.1) and would coordinate with the school district to make sure that adequate developer fees are collected in accordance with state law (General Plan Policy PFS-9.7). The City would also work with WPUSD and the applicant to evaluate alternatives to funding/providing adequate school facilities, pursuant to General Plan Policy PFS-9.9. The WPUCD 2016 School Facility Fee Justification report indicated that residential development creates a school facility cost of \$7.28 per square foot and commercial/industrial development creates a school facility cost of \$1.56 to \$6.63 per square foot. Therefore, there would be a gap between what is collected and costs that are generated from residential and commercial development for the project.

As discussed above, the provisions of State law are considered full and complete mitigation for the purposes of analysis under CEQA for school construction needed to serve new development. In fact, State law expressly precludes the City from reaching a conclusion under CEQA that payment of the Leroy F. Greene School Facilities Act school impact fees would not completely mitigate new development impacts on school facilities. Consequently, the City of Lincoln is without the legal authority under CEQA to impose any fee, condition, or other exaction on the project for the funding of new school construction other than the fees allowed by the Leroy F. Greene School Facilities Act. Although WPUSD may collect higher fees than those imposed by the Leroy F. Greene School Facilities Act, no such fees are required to mitigate the impact under CEQA. Because the project would pay fees as required by The Leroy F. Greene School Facilities Act, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 4.9-6: Increased demand for fire protection and emergency medical services.

The project would include development which would increase demand for fire protection and emergency medical services. The applicant would be required to pay applicable City development fees to pay for the project's fair share of existing facilities and anticipated need for two additional firefighters. In addition, the project would generate increased tax revenues, which could be used to fund additional personnel and existing facilities. The impact of project-generated demand for fire protection and emergency medical service would be **less than significant**.

The City expands fire protection services as growth and development occurs to meet the adopted fire response time of five minutes or less as a general guideline. (General Plan Policies PFS-8.2, PFS-8.4, and PFS-8.5). To serve the needs of the population generated by the project, it is estimated that the City of Lincoln's Fire Department would need to increase by about two firefighters and add 1,365 square feet of fire station facilities. Funding for fire operations and services is derived from the City's General Fund, which is based primarily on property tax and sales tax revenues. As the project is developed, there would be an increase in these revenues, which could be used to fund additional fire operations. To address the project's proportionate share of additional firefighters as well as fire facilities that have already been constructed and that would serve the area, the project applicant would pay applicable City development fees. Any additional fire facilities constructed by the City would undergo separate environmental review. Therefore, the projected increase in demand for emergency services would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 4.9-7: Increase the need for police protection services.

The project is anticipated to result in additional demand for police services. Taxes and fees levied on the project would provide the City with the means to offset the increased demand for law enforcement services created by the project. In addition, the applicant would be required to pay applicable City development fees to pay for the project's fair share of anticipated need for up to three additional police officers. This would be a **less-than-significant** impact.

The City would expand police protection service consistent with community needs and provide an adequate level of service (General Plan Policy PFS-8.8), including striving to maintain an average response time of five minutes or less for high priority calls (General Plan Policy PFS-8.14). Per General Plan Policy PFS-8.11, the project would result in an increase in demand on police services equal to about three officers. The Police Department is funded primarily from the City's General Fund, which receives revenue from property taxes, transit taxes, fees, and other sources. Residents and businesses in the project area would pay taxes and fees that would increase the General Fund. Typically, the City would use a part of this additional revenue to

increase police staffing, as needed. To address the project's proportionate share of additional police officers, the project applicant would pay appropriate City developments fees. Because the taxes and fees would provide the City with the means to offset the increased demand for law enforcement services created by the project, this would be a **less-than-significant** impact.

Mitigation Measures

No mitigation is required.

4.10 TRANSPORTATION AND CIRCULATION

This chapter analyzes the potential impacts of the project on the surrounding transportation system including roadways, bicycle/pedestrian facilities, and transit facilities/services. This chapter identifies the significant impacts of the project and recommends mitigation measures to lessen their significance. All technical calculations can be found in Appendix F.

4.10.1 Environmental Setting

This section describes existing regional and local environmental conditions relevant to transportation and circulation.

STUDY AREA ROADWAYS AND INTERSECTIONS

Study intersections and roadways were selected for analysis based on their proximity to the project site, expected use by project traffic, and their susceptibility of being adversely affected by the project. The following seven intersections and nine study roadway segments were selected for study. Although State Route (SR) 65 freeway/highway segments in the project vicinity could have also be analyzed, study intersection 7 (SR 65/Nelson Lane) is the critical facility, which dictates that corridor's operation. Therefore, it was studied while the adjacent freeway/highway segments were not. Exhibit 4.10-1 displays the study intersections included in the transportation analysis, which encompass the "study area" for the project's transportation and circulation analysis.

Intersections

1. Nicolaus Road/Nelson Lane
2. Nicolaus Road/Waverly Drive
3. Nicolaus Road/Lakeside Drive
4. Nicolaus Road/Joiner Parkway
5. Joiner Parkway/First Street
6. Joiner Parkway/Third Street
7. State Route 65/Nelson Lane

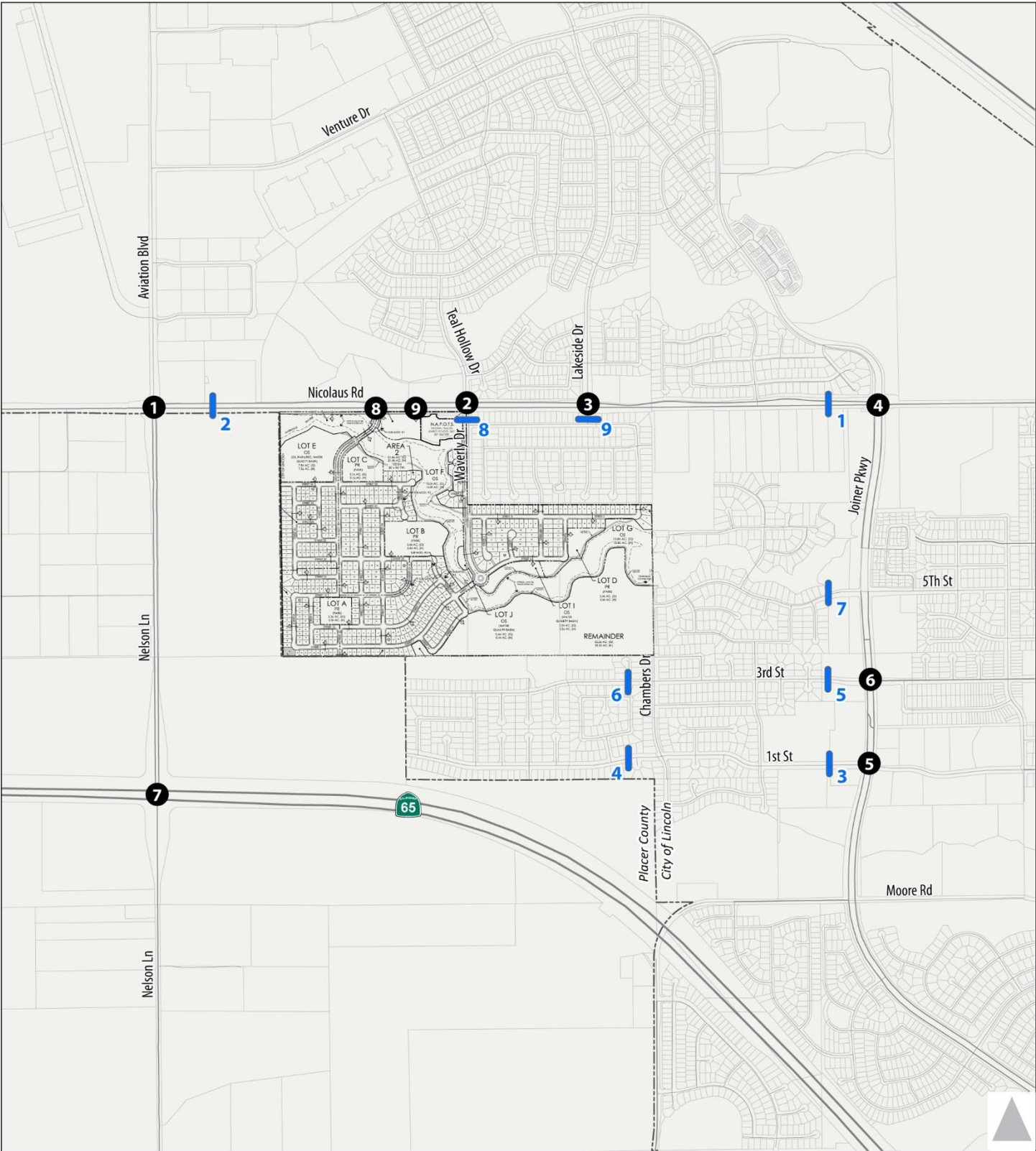
Roadways

1. Nicolaus Road west of Joiner Parkway
2. Nicolaus Road east of Nelson Lane
3. First Street west of Joiner Parkway
4. First Street west of Chambers Drive
5. Third Street west of Joiner Parkway
6. Third Street west of Chambers Drive
7. Fifth Street west of Joiner Parkway
8. Waverly Drive south of Nicolaus Road
9. Glenmoor Lane south of Nicolaus Road

Exhibit 4.10-1 shows that all study intersections are located along Nelson Lane, Nicolaus Road, or Joiner Parkway; at least one of these must be used to access the project site. The study roadway segments on First, Third, and Fifth Street were selected for analysis because in cumulative conditions, project access is possible along these segments. In the near-term, however, the project's effect on these segments would be expected to be minimal because access via these streets would not be provided until surrounding project develop.

Exhibit 4.10-2 displays roadway classification, number of lanes, speed limits, and intersection control types within the study area. Major roadways in the study area are described below:

State Route 65 is a north-south state highway that begins at Interstate 80 (I-80) and extends north through Lincoln to SR 70 south of Marysville. SR 65 is a four-lane freeway from I-80 to the at-grade intersection with Nelson Lane. It continues as a four-lane divided highway from Nelson Lane to north of Wise Road. North of Wise Road, it becomes a two-lane state highway connecting the area to Yuba County and



1 Study Intersection

Study Roadway



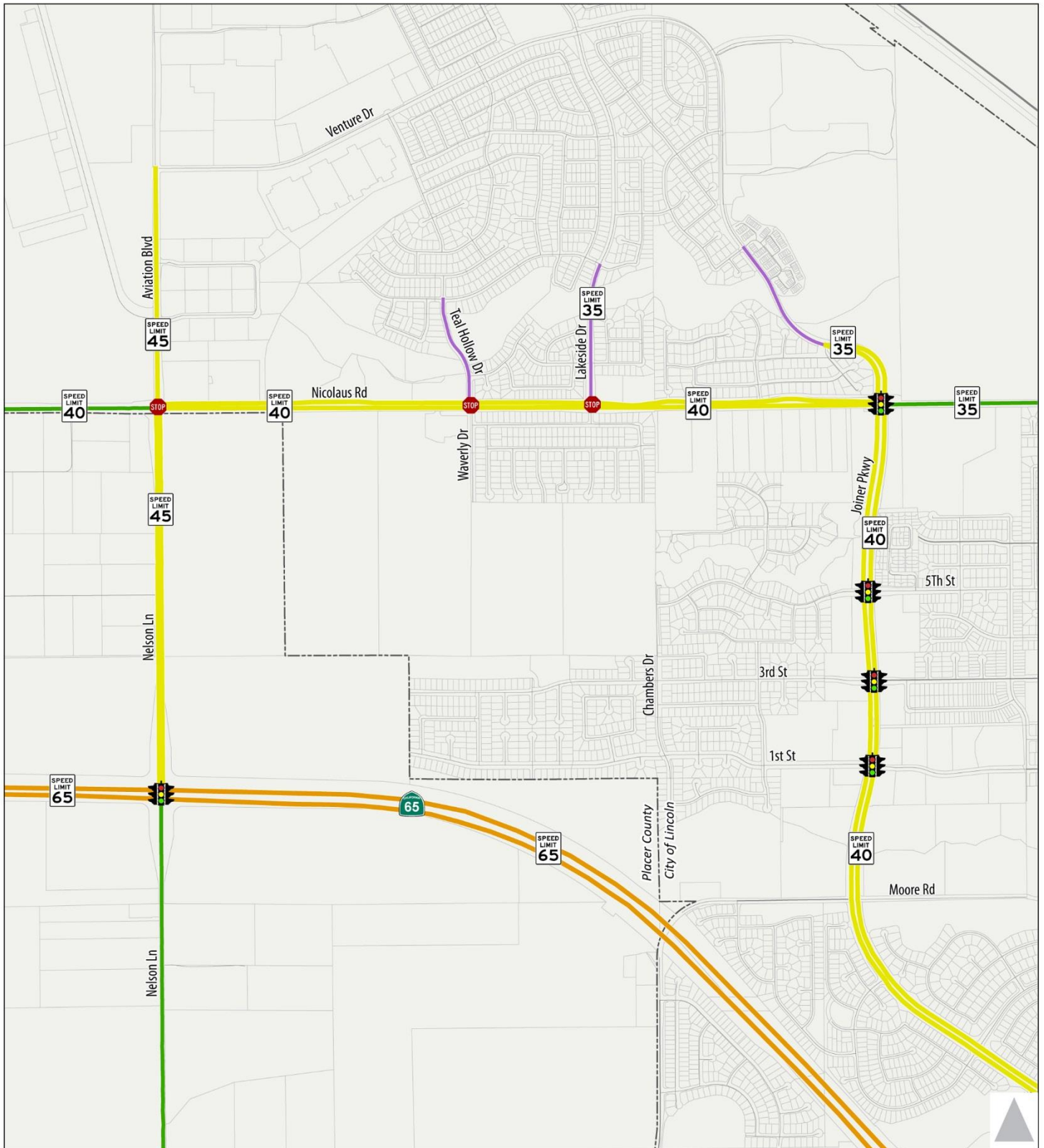
Source: Fehr & Peers 2016

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Exhibit 4.10-1

Study Area





- | | | |
|---|----------------------|---|
|  | All-Way Stop-Control | Roadway Classification and Number of Lanes |
|  | Traffic Signal |  4-Lane Freeway/Highway |
| | |  4-Lane Divided Arterial |
| | |  2-Lane Arterial |
| | |  2-Lane Collector |

 Source: Fehr & Peers 2016

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Exhibit 4.10-2

Existing Roadway System



Marysville to the north. The section of SR 65 between Lincoln Boulevard and Riosa Road is known as the Lincoln Bypass. The Lincoln Bypass opened in 2012 to facilitate travel between South Placer County and Yuba County and reduce through traffic in the City of Lincoln. The former SR 65 alignment through Downtown Lincoln is now called Lincoln Boulevard.

Nicolaus Road is an east-west arterial roadway that extends from O Street in Lincoln west to Pleasant Grove Road in unincorporated Placer County. Within the study area, it is a four-lane divided roadway between Nelson Lane and Joiner Parkway. It is two lanes east of Joiner Parkway and a two-lane rural roadway west of Nelson Lane. It has a grade separated overcrossing of the SR 65 bypass. In addition, Nicolaus Road is an STAA truck route, which means that California legal trucks may use it to deliver goods and materials to industrial uses in the Lincoln Airport Industrial Area.

Nelson Lane is a north-south rural roadway that runs from Moore Road south of SR 65 northerly to Nicolaus Road. Within the study area, it was recently widened to four lanes and has a signalized intersection with SR 65 and an all-way stop with Nicolaus Road.

Joiner Parkway is an arterial street that spans much of the City of Lincoln from south to north. Within the study area, Joiner Parkway is a four-lane divided arterial. North of Nicolaus Road, Joiner Parkway narrows from four to two lanes.

Waverly Drive is a two-lane collector street that extends southerly from Nicolaus Road to serve an existing residential neighborhood. Residences do not front on the street. The southerly extension of this street would serve as one of the primary accesses to the project, as is discussed later.

Glenmoor Lane is a short two-lane residential street (located opposite Lakeside Drive) that provides access to an existing residential neighborhood. As is discussed later, the project would provide two street connections into this neighborhood, which would enable project trips to access Nicolaus Road via Glenmoor Lane.

STUDY PERIODS

This report analyzes project impacts during the following analysis periods:

- ▲ Weekday AM Peak Hour – the AM peak hour is defined as the consecutive 60-minute period that has the greatest traffic volume within the 7:00 to 9:00 a.m. peak period.
- ▲ Weekday PM Peak Hour – the PM peak hour is defined as the consecutive 60-minute period that has the greatest traffic volume within the 4:00 to 6:00 p.m. peak period

Peak hours were defined on the basis of individual intersection peak hours because (1) it is more conservative to analyze peak hours at the intersection level, (2) intersections are relatively isolated from each other so balancing is not always critical, and (3) there are no coordinated corridors being studied. The most common AM peak hour was from 7:30 to 8:30 a.m., while the most common PM peak hour was from 4:30 to 5:30 p.m.

TRAFFIC DATA COLLECTION

Traffic counts were collected at the following intersections on Wednesday, May 20, 2015:

- ▲ Nicolaus Road/Nelson Lane
- ▲ Nicolaus Road/Waverly Drive
- ▲ Nicolaus Road/Lakeside Drive
- ▲ Nicolaus Road/Joiner Parkway
- ▲ Joiner Parkway/Third Street

Existing conditions volumes for Joiner Parkway/First Street and Nicolaus Road/SR 65 were taken from the transportation impact analysis prepared by Fehr & Peers for the *Village 5 Specific Plan Administrative Draft EIR* (2016). The counts for these intersections were completed on Wednesday, April 9, 2014. Exhibit 4.10-3 presents the existing traffic volumes, lane configurations, and traffic control devices at the study intersections.

Twenty-four hour traffic counts were taken at the study segments 1 - 7 on Wednesday, May 20, 2015. No unusual traffic conditions were present at the time and local schools were still in session. Table 4.10-1 presents the average daily traffic (ADT) volumes for each study roadway segment. In addition to ADT at study roadway segments, ADT at existing project accesses (segments 8 and 9) was estimated (using the ratio of AM and PM peak hour-to-daily traffic from adjacent streets) and is displayed below. All study roadway segments and project access roadways lie within City of Lincoln limits. Table 4.10-1 shows that daily traffic volumes along Nicolaus Road are less than 9,000 ADT, which is well within the capacity of a four-lane arterial.

The roadway ADT information is used as inputs for air/noise analysis (presented in other chapters), and to understand how daily traffic levels would change with the project. The City of Lincoln does not have adopted criteria for daily roadway segment level of service (LOS). Therefore, LOS results for roadway segments is not presented in this study.

Table 4.10-1 Two-Way Average Daily Traffic – Existing Conditions

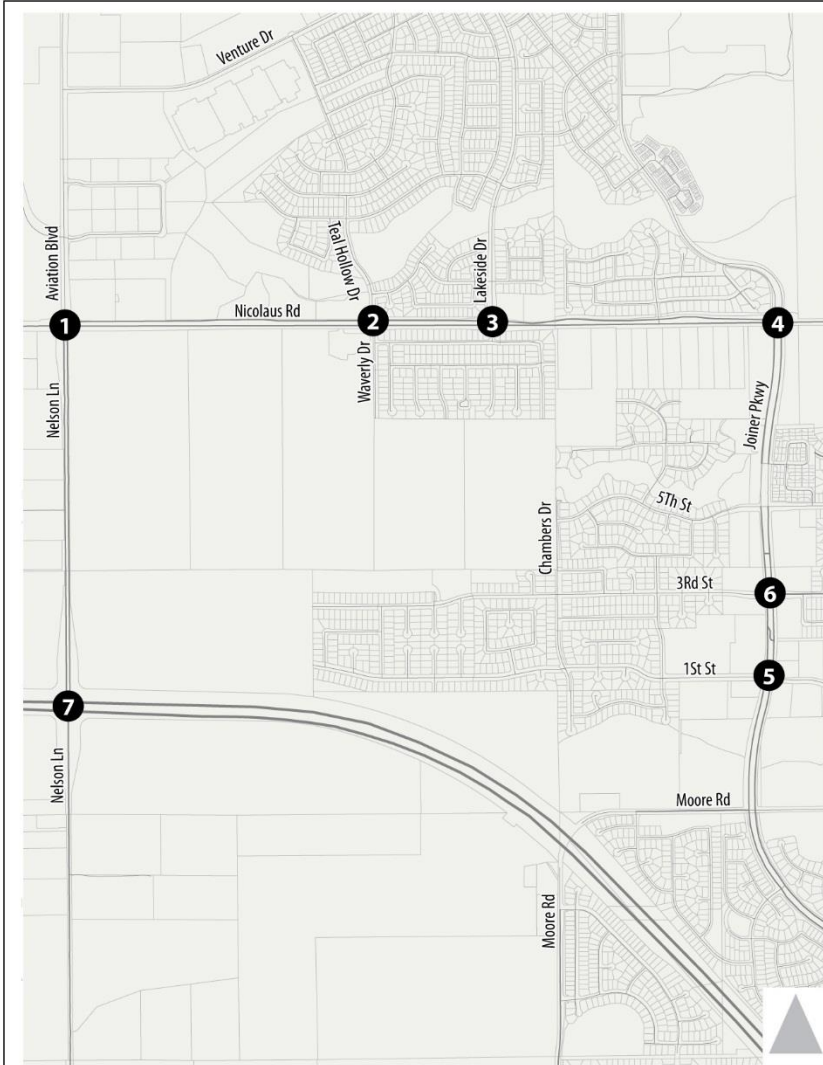
Roadway Segment	Number of Lanes	Average Daily Traffic
Nicolaus Road west of Joiner Parkway	4	8,700
Nicolaus Road east of Nelson Lane	4	7,300
First Street west of Joiner Parkway	2	4,300
First Street west of Chambers Drive	2	1,500
Third Street west of Joiner Parkway	2	2,000
Third Street west of Chambers Drive	2	800
Fifth Street west of Joiner Parkway	2	1,600
Waverly Drive south of Nicolaus Road	2	900
Glenmoor Lane (opposite Lakeside Drive) south of Nicolaus Road	2	1,300

Notes: - Counts conducted on Wednesday, May 20, 2015.
Values rounded to the nearest one hundred vehicles.

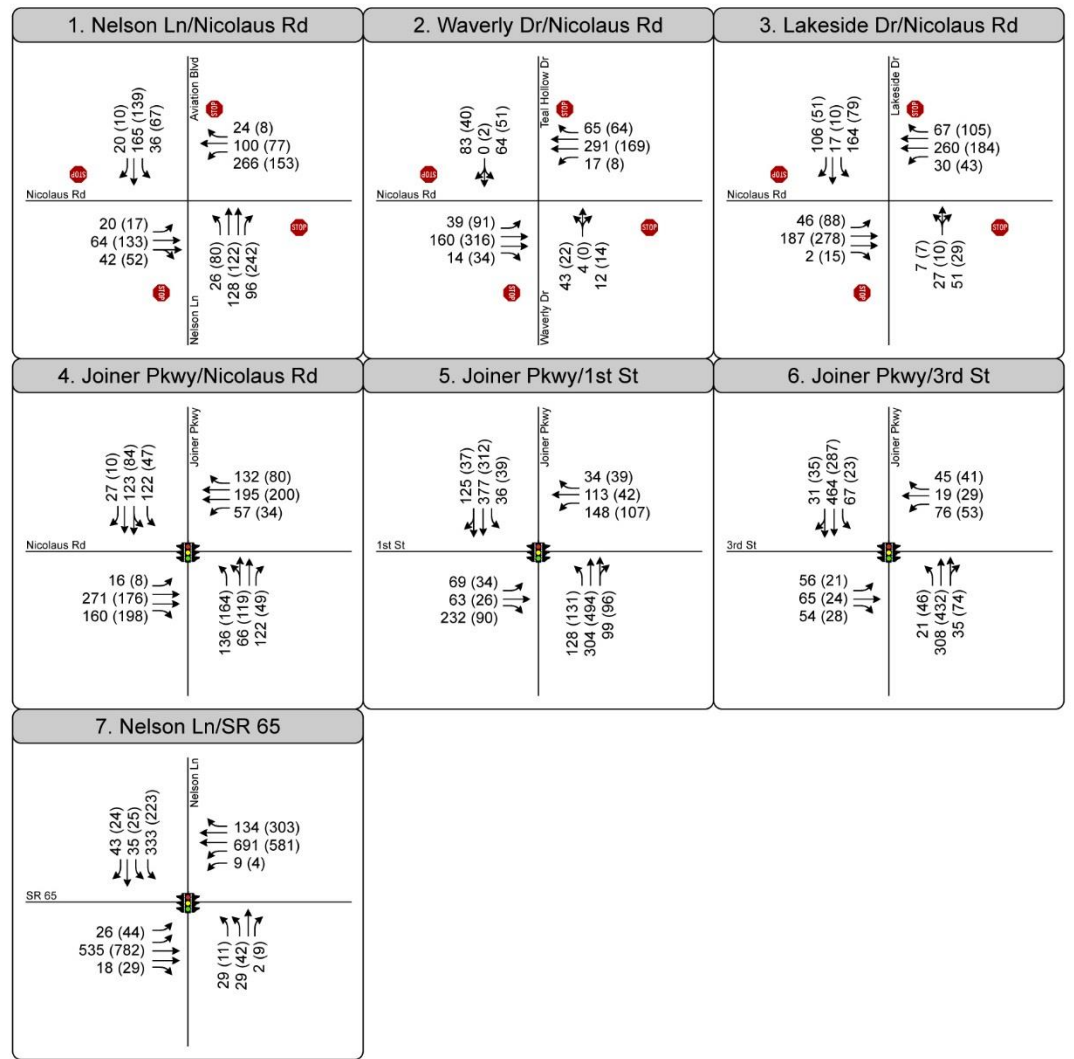
LEVELS OF SERVICE

The operational performance of the roadway network is commonly described with the term Level of Service (LOS). LOS is a qualitative description of operating conditions, ranging from LOS A (free-flow traffic conditions with little or no delay) to LOS F (oversaturated conditions where traffic flows exceed design capacity, resulting in long queues and delays). The LOS analysis methods outlined in the *Highway Capacity Manual* (HCM) (Transportation Research Board 2010) were used in this report. The HCM methods for calculating LOS for intersections are described below.

Refer to Section 4.10.2 for a description of the City's level of service policies.



- 1** Study Intersection
- Turn Lane
- AM (PM) Peak Hour Traffic Volume
- Traffic Signal
- Stop Sign



Source: Fehr & Peers 2016

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Exhibit 4.10-3

Peak Hour Traffic Volumes and Lane Configurations – Existing Conditions



SIGNALIZED INTERSECTIONS

A signalized intersection’s LOS is based on the weighted average control delay of all vehicles passing through the intersection. Delay is measured in seconds per vehicle, and includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration. Table 4.10-2 summarizes the relationship between the delay and LOS for signalized intersections. This study used the Synchro 8 software, which calculated intersection LOS consistent with HCM 2010 procedures. The following assumptions and inputs were used in modeling:

1. The field-observed peak hour factor (PHF), a measure of variation or “peaking” of traffic within the peak hour, was entered into the Synchro software program (consistent with guidance from 2010 HCM) at the intersection level. Under cumulative conditions, the PHF for each intersection was increased to 0.92 if the PHF was not already 0.92 or higher. This represents a reasonable increase in PHF resulting from anticipated increases in background traffic.
2. Field observations revealed modest pedestrian activity in the study area. Under cumulative conditions, five pedestrians per hour were assumed at crosswalks.
3. Signal timing for SR 65/Nelson Lane was obtained from Caltrans signal timing sheets. Signal timing data at City of Lincoln intersections was input where available or otherwise based on field observations.

Table 4.10-2 LOS Criteria – Intersections			
Level of Service	Description (for Signalized Intersections)	Average Delay (Seconds/Vehicle)	
		Signalized Intersections	Unsignalized Intersections
A	Operations with very low delay occurring with favorable traffic signal progression and/or short cycle lengths.	≤ 10.0	≤ 10.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	> 10.0 to 20.0	> 10.0 to 15.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	> 20.0 to 35.0	> 15.0 to 25.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	> 35.0 to 55.0	> 25.0 to 35.0
E	Operations with high delay values indicating poor progression, and long cycle lengths. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	> 55.0 to 80.0	> 35.0 to 50.0
F	Operations with delays unacceptable to most drivers occurring due to over-saturation, poor progression, or very long cycle lengths.	> 80.0	> 50.0

Note: LOS = level of service; V/C ratio= volume-to-capacity ratio
 LOS at signalized intersections and roundabouts based on average delay for all vehicles. LOS at unsignalized intersections is reported for entire intersection and for minor street movement with greatest delay.
 Source: Transportation Research Board 2010

UNSIGNALIZED INTERSECTIONS

Table 4.10-2 shows the average delay range associated with each LOS category for unsignalized intersections. For side-street control intersections, the delay and LOS is reported for the entire intersection and the minor street movement with the greatest delay. Table 4.10-2 shows that for a given LOS, a higher threshold of delay is provided at signalized intersections versus unsignalized intersections. This is based on driver expectation of having to wait less time at a stop sign versus a traffic signal.

Signal Warrant Analysis

To determine the appropriateness of signaling a currently unsignalized intersections, signal warrants were completed for all unsignalized intersections in every scenario and peak hour. Warrant 3A and 3B from the *California Manual on Uniform Traffic Control Devices (MUTCD)* was used (2014 Edition, pp. 830-1) because these two warrants are most applicable given the available traffic data and site conditions. These warrants are “intended for use at a location where traffic conditions are such that for a minimum of one hour of an average, the minor-street traffic suffers undue delay when entering or crossing the major street).”

Existing Intersection Levels of Service

Existing traffic operations were analyzed at the seven study intersections for the two study hours. Table 4.10-3 displays the results. Refer to Appendix F for technical calculations. Based on the results presented in Table 4.10-3, all intersections currently operate at LOS C or better. These results match existing conditions, which generally reveal modest levels of queuing and vehicle delay during the study periods.

Table 4.10-3 Peak Hour Intersection Level of Service – Existing Conditions					
Intersection	Control	AM Peak Hour		PM Peak Hour	
		Delay ¹	LOS	Delay ¹	LOS
Nelson Lane/Nicolaus Road	AWSC	13.6	B	12.2	B
Waverly Drive/Teal Hollow Drive /Nicolaus Road	AWSC	10.5	B	9.8	A
Lakeside Drive /Nicolaus Road	AWSC	14.0	B	10.8	B
Joiner Parkway/Nicolaus Road	Signal	18.2	B	15.1	B
Joiner Parkway /1st Street	Signal	21.3	C	15.3	B
Joiner Parkway /3rd Street	Signal	16.1	B	13.3	B
SR 65/Nelson Lane	Signal	22.2	C	21.1	C

Notes: LOS = level of service. AWSC = All-Way Stop Control.

¹ For signalized and all-way stop controlled intersections, average intersection delay is reported in seconds per vehicle for all approaches.

Source: Fehr & Peers 2016

A signal warrant analysis determined that none of the unsignalized intersections currently meet Warrant 3 from the CA MUTCD for consideration of a traffic signal.

TRANSIT SERVICE

Transit service in Lincoln consists of the “Lincoln Route”, which is operated by Placer County Transit. Although this route serves downtown and other areas of the City, it does not currently extend to the northwest quadrant of the City, in which the project site is located.

BICYCLE AND PEDESTRIAN FACILITIES

The following types of bicycle facilities exist within the study area:

- ▲ Multi-use paths (Class I) are paved trails that are separated from roadways, and allow for shared use by both cyclists and pedestrians.
- ▲ On-street bike lanes (Class II) are designated for use by bicycles by striping, pavement legends, and signs.

Exhibit 4.10-4 displays existing bicycle facilities within the project vicinity. A Class I multi-use path exists along Nicolaus Road (north side) between Joiner Parkway and Lakeside Drive. Class II bike lanes exist at all

other segments marked on Exhibit 4.10-4, including portions of Aviation Boulevard, Nicolaus Road west of Teal Hollow Drive/Waverly Drive, Nicolaus Road east of Joiner Parkway, parts of Joiner Parkway, and First Street east of Joiner Parkway. The south side of the segment of Nicolaus Road west of Waverly Drive has a shoulder of suitable width to facilitate bicycle travel. However, lane marking and signage is not present to designate it as bike lane.

As also seen in Exhibit 4.10-4, the pedestrian network in the study area includes sidewalks along a majority of residential streets. Arterial streets such as Nicolaus Road and Joiner Parkway also feature sidewalks, although there are gaps particularly where abutting properties have not been developed. The south side of the segment of Nicolaus Road west of Waverly Drive does not have a sidewalk. All intersections have three or more crosswalks except for Waverly Drive/Nicolaus Road, which has two crosswalks, and Nicolaus Road/Nelson Lane, which has no crosswalks and no adjacent pedestrian facilities.

4.10.2 Regulatory Setting

FEDERAL

There are no federal laws or regulations related to transportation that directly apply to the project.

STATE

The California Department of Transportation (Caltrans) is responsible for operating and maintaining the state highway system. In the project vicinity, the SR 65/Nelson Lane intersection falls under Caltrans' jurisdiction. The following Caltrans (District 3) planning and policy documents provide guidance on expectations for this route related to traffic operations relevant to this analysis and the potential effects of the project.

State Route 65: Corridor System Management Plan

In June 2009, Caltrans approved a corridor system management plan (CSMP) for SR 65 from I- 80 in Roseville to SR 70 in Yuba County south of Marysville. The CSMP is a long-range comprehensive planning document for state highway facilities that includes system management strategies and performance evaluation measures to track the effectiveness of strategies and projects.

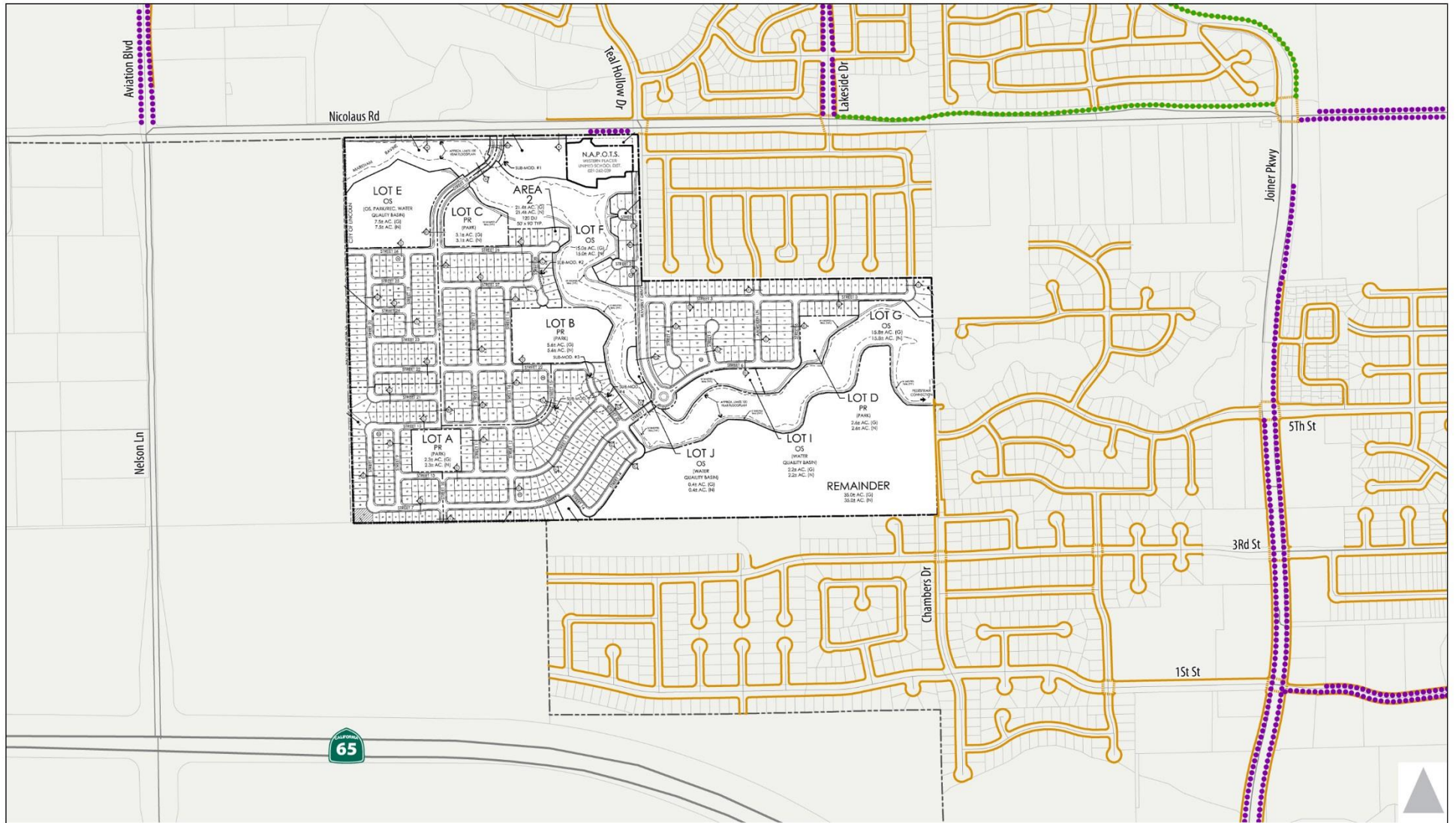
The CSMP documents the current LOS on SR 65 and the future LOS when considering feasible long-term projects. The CSMP also identifies a concept LOS, or the minimum level or quality of operations acceptable, for SR 65 within the 20-year planning period. A deficiency or need for improvement is triggered when the actual LOS falls below the concept LOS. Within the vicinity of our study area, the SR 65 CSMP identifies the 20-year concept LOS as LOS E from Ferrari Ranch Road to Gladding Road and LOS D from Gladding Road to Riosa Road.

At the time of the preparation of the SR 65 CSMP, the SR 65 Bypass through the study area was not yet open to traffic. With the SR 65 Bypass now open, SR 65 no longer travels through downtown Lincoln, and the segments from Ferrari Ranch Road to Gladding Road and from Gladding Road to Riosa Road now exist as part of the Lincoln Bypass, roughly corresponding with Ferrari Ranch Road to Nicolaus Road and Nicolaus Road to Riosa Road. Therefore, this study uses the concept LOS E for Ferrari Ranch Road to Gladding Road in the CSMP for the Ferrari Ranch Road to Nicolaus Road segment of the current SR 65 (Lincoln Bypass). This means that the threshold for the Nelson Lane/SR 65 intersection is LOS E. This LOS standard does not conflict with the City's LOS policy because this intersection under the jurisdiction of Caltrans and subject to their policies.

Caltrans Guide for the Preparation of Traffic Impact Studies

Caltrans' *Guide for the Preparation of Traffic Impact Studies* provides general guidance regarding the preparation of traffic impacts studies for projects that may have an impact on the State Highway System.

The guidance includes when a traffic study should be prepared and the methodology to use when evaluating operating conditions on the State highway system.



- Sidewalk
- Crosswalk
- Class I - Multi-Use Path
- Class II - Bike Lane



Source: Fehr & Peers 2016

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Exhibit 4.10-4

Existing Bike and Pedestrian Facilities



The *Guide for the Preparation of Traffic Impact Studies* states that where “an existing State highway facility is operating at less than the appropriate target LOS, the existing measure of effectiveness should be maintained.”^{1 2}

LOCAL

The project and all study intersections (with the exception of SR 65/Nelson Lane) are located within City of Lincoln limits. The local policies and regulations applicable to the project related to transportation and circulation are presented below.

City of Lincoln General Plan

The Transportation & Circulation Element of the *City of Lincoln General Plan* (March 2008) includes the following goals and policies that are relevant to transportation and circulation.

- ▲ **Policy T-2.2:** New Development. The City shall ensure that streets and highways will be available to serve new development by requiring detailed traffic studies and necessary improvements as a part of all major development proposals.
- ▲ **Policy T-2.3:** Level of Service for Local Streets and Intersections. Strive to maintain a LOS C at all signalized intersections in the City during the p.m. peak hours. Exceptions to this standard may be considered for intersections where the city determines that the required road improvements are not acceptable (i.e., due to factors such as the cost of improvements exceeding benefits achieved, results are contrary to achieving a pedestrian design, or other factors) or that based upon overriding considerations regarding project benefits, an alternative LOS may be accepted. For purposes of this policy, City intersections along McBean Park Drive between East Avenue and G Street, and G Street between First Street and Seventh Street, are excluded from the LOS C standard, and will operate at a lower LOS. [Note that G Street is also known as Lincoln Boulevard and/or “Old Highway 65.”]
- ▲ **Policy T-2.14:** Developer Requirements. The City shall require developers to construct at least the first two lanes of any road (including curbs, gutters and sidewalks) within their projects.
- ▲ **Policy T-4.3:** Promote Public Transit. The City shall promote the use of public transit through development conditions requiring park-and-ride lots, bus turnouts and passenger shelters along major streets adjacent to appropriate land uses.
- ▲ **Policy T-5.1:** Develop Bike Lanes. The City shall require bike lanes in the design and construction of major new street and highway improvements, and to establish bike lanes on those city streets wide enough to accommodate bicycles safely.
- ▲ **Policy T-5.4:** Bicycle and Pedestrian Crossings. The City shall provide pedestrian/bicycle crossings at appropriate intervals along new roadways that will adequately serve new large-scale commercial office, industrial development, and residential development as well as parks and schools.
- ▲ **Policy T-5.6:** Trails and Pathways to Retail and Employment Centers. The City shall promote pedestrian convenience and safety through development conditions requiring sidewalks, walking paths, or hiking trails that connect residential areas with commercial, shopping, and employment centers. Where feasible, trails will be looped and interconnected.
- ▲ **Policy T-5.7:** Trails and Pathways along Creeks and Wetland Areas. The City shall encourage the development of trails and pathways along the edges of creeks and wetland areas. Where feasible, trails will be looped and interconnected.

¹ Caltrans, 2009. *State Route 65 Corridor System Management Plan*. Approved June 24, 2009. Table 11.

² Caltrans, 2002. *Guide for the Preparation of Traffic Impact Studies*. p. 1.

- ▲ **Policy T-5.9: Pedestrian Access.** The City shall encourage specific plans and development plans to include design of pedestrian access that enables residents to walk from their homes to places of work, recreation and shopping.
- ▲ **Policy HS-3.10: Travel Demand Measures.** Coordinating with the PCAPCD, the City shall require large development projects to mitigate air quality impacts. As feasible, mitigations may include, but are not limited to, the following:
 - providing bicycle access and bicycle parking facilities,
 - providing preferential parking for high-occupancy vehicles, car pools, or alternative fuels vehicles (including neighborhood electric vehicles or NEVs), and
 - establishing telecommuting programs or satellite work centers.
- ▲ **Policy HS-3.18: Design for Transportation Alternatives.** The City shall encourage all new development to be designed to promote pedestrian and bicycle access and circulation (including the use of NEVs), to the greatest extent feasible.

Policy T-2.3 establishes the City of Lincoln's LOS C policy for signalized intersections during the PM peak hour. Because the City does not have an adopted LOS policy for unsignalized intersections or other time periods (i.e., AM peak hour), this study applies this LOS C standard to all City of Lincoln intersections—signalized and unsignalized—during both the AM and PM peak hour, consistent with previous traffic analyses prepared for the City of Lincoln. Unacceptable AM peak hour and/or unsignalized conditions are conservatively treated as significant impacts if caused or exacerbated (to a significant degree) by the project, even if such a result is not prescribed under the City's level of service policy.

City of Lincoln 2012 Bicycle Transportation Plan Update

The *City of Lincoln Bicycle Transportation Plan Update (2012)* includes the following goals policies related to bicycle circulation in new development areas that are relevant to the project.

- ▲ **Policy 1.5:** Provide bicycle connections that allow for regional bike travel to and from the City of Lincoln.
- ▲ **Policy 1.6:** Integrate bicycle planning with other community planning, including land use and transportation planning.
- ▲ **Policy 2.1:** Require new development projects to reserve the right-of-way for multi-use trails shown in the proposed system of bikeways.
- ▲ **Policy 2.3:** Provide pedestrian/bicycle crossings at appropriate intervals along new roadways that will adequately serve new large-scale commercial office, industrial development, and residential development.

4.10.3 Environmental Impacts and Mitigation Measures

ANALYSIS METHODOLOGY

This section assesses the operation of street segments, key intersections, and freeway ramp in the study area, based on the anticipated distribution of traffic related to the construction and operation of the project.

Vehicular access to the project would be provided by four access points on Nicolaus Road:

1. **Westerly Access:** Street 18 would intersect with Nicolaus Road approximately 800 feet west of Waverly Drive. This access would provide access to the west side of the project. Full access is assumed at the

intersection of Nicolaus Road/Street 18 with stop-control on the Street 18 approach. The site plan shows a proposed 175-foot westbound left-turn lane at the intersection.

2. **Central Access:** The project would extend Waverly Drive southerly into the central portion of the project site. The Nicolaus Road/Waverly Drive intersection currently features all-way stop-control and would remain as such.
3. **Easterly Access:** The project would include two street connections into the existing residential development located east of Waverly Drive. Project trips could travel through this neighborhood to access the Nicolaus Road/Lakeside Drive/Glenmoor Lane intersection, which features all-way stop-control. This route, however, is circuitous.
4. **Additional Multi-Family Access:** A separate right in/right out driveway that provides access to the multi-family residential is assumed on Nicolaus Road east of Street 18. A second right-turn only driveway to this parcel is also assumed along Street 18.

The project site plan shows details of planned bicycle and pedestrian facilities within the site including:

- ▲ Class II bike lanes along Street 18 and Waverly Drive, which are the two major points of access from Nicolaus Road.
- ▲ Class II bike lanes on the south side of Nicolaus Road along the project frontage (where not already present).
- ▲ Class I bicycle/pedestrian trails on both sides of an unnamed tributary to Markham Ravine with connections to Street 18, Waverly Drive, and other internal streets.
- ▲ A pedestrian connection from the Class I multi-use path along Markham Ravine to Chambers Drive (located east of the project).
- ▲ Sidewalks are proposed throughout the project site, including Street 18, Waverly Drive, and the south side of Nicolaus Road within project boundaries. The only location along Nicolaus Road where sidewalks are currently missing and not proposed as part of the project is a 475-foot segment along the Western Placer Unified School District Bus Yard (directly west of Waverly Drive).

PROJECT TRAVEL CHARACTERISTICS UNDER EXISTING CONDITIONS

Traffic generated by the project is assigned to the roadway network using the following three-step process:

1. **Trip Generation** – estimates the amount of traffic generated by the project based on its planned land uses.
2. **Trip Distribution** – spatially distributes project trips based on anticipated origins and destinations of trips.
3. **Trip Assignment** – assigns project trips to the roadway network based on expected routes to be taken by project trips.

This study uses the Placer County base year travel demand forecasting (TDF) model for this three-step process. This TDF model uses land use inputs, trip rates, the existing roadway network, and other traffic engineering inputs to estimate travel demand. The model's roadway network includes major roadways, including freeways, highways, arterials, and collector streets. This study uses a version of the Placer County base year TDF model that has been updated to include the SR 65 Lincoln Bypass, as well as updated land uses and infrastructure improvements to reflect recent land development. In addition, this version of the TDF model was utilized for traffic studies of the nearby Village 5 Specific Plan and the SUD-B projects.

Trip Generation, Distribution, and Assignment

Table 4.10-4 shows the estimated trips generated for each land use under weekday daily, AM peak hour, and PM peak hour conditions. Footnote 2 of this table indicates that the park was assumed to be used by two soccer teams for practices during the weekday PM peak hour. This is more conservative than applying a generic trip rate (acre of park space) because the generic trip rate for parks is for a regional or community park and would generate maybe 1 or 2 PM peak hour trips versus the 35 peak hour trips assumed for this project. As shown below, the project would generate approximately 5,900 daily vehicle trips, 460 new AM peak hour trips, and 645 new PM peak hour trips. The trips generated by the residential land uses are based on trip rates from the *Trip Generation Manual* (9th Edition, Institute of Transportation Engineers 2012) while the trip generation of the soccer fields is estimated based on the expected travel patterns of two teams practicing at the site during a weekday afternoon. No reduction is made for internalization given that the vast majority of the project’s land use is residential.

Table 4.10-4 Project Trip Generation												
Land Use (ITE Code)	Quantity	Unit	Trip Rate ^{1,2,3}			Trips						
			Daily	AM	PM	Daily	A.M. Peak Hour			P.M. Peak Hour		
							In	Out	Total	In	Out	Total
Single Family Residential (210)	575	du	9.52	0.75	1.00	5,475	108	323	431	362	213	576
Multi-Family Residential (220)	54	du	6.65	0.51	0.62	359	6	22	28	22	12	34
Sports Fields	2	Soccer Fields	-	-	-	70	0	0	0	25	10	35
Total External Vehicle Trips ⁵						5,904	114	345	459	409	235	645

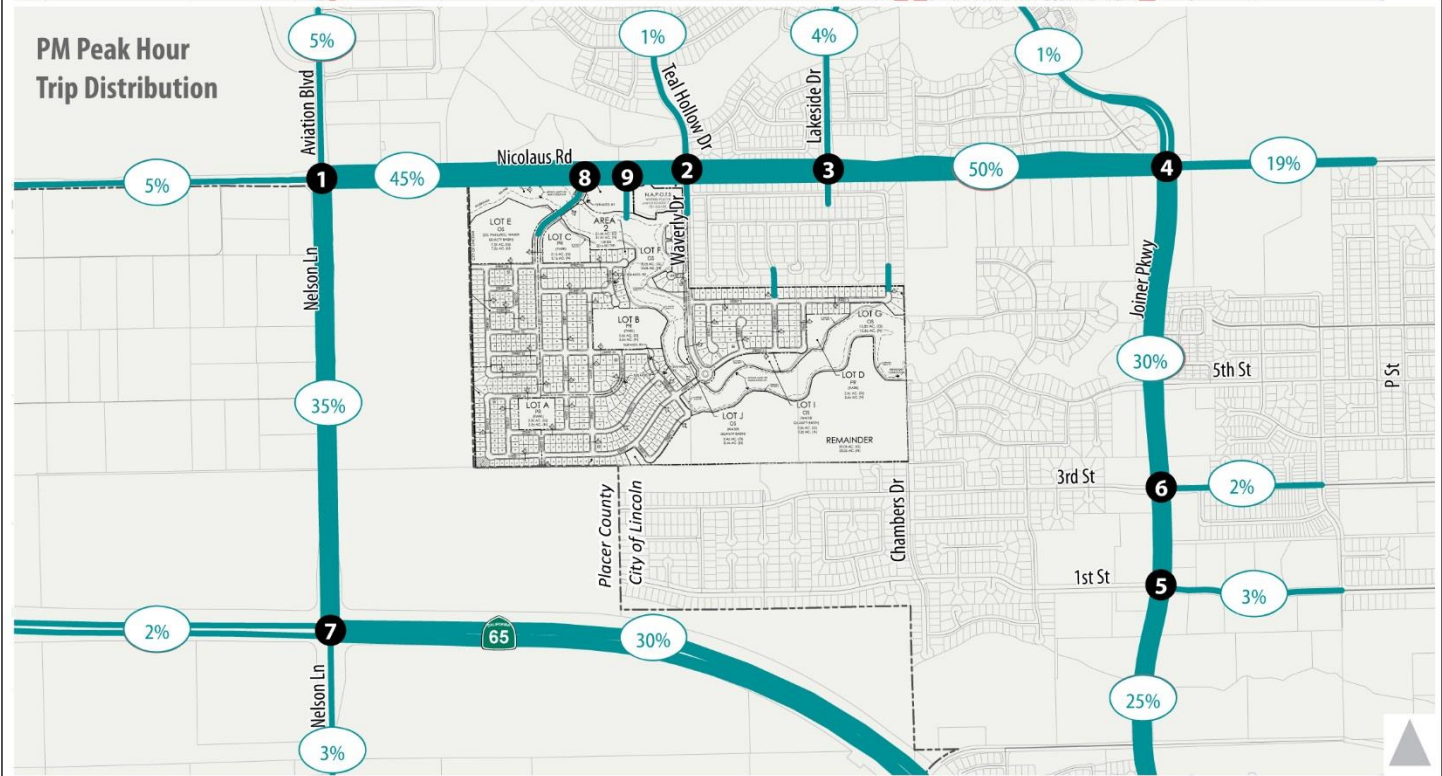
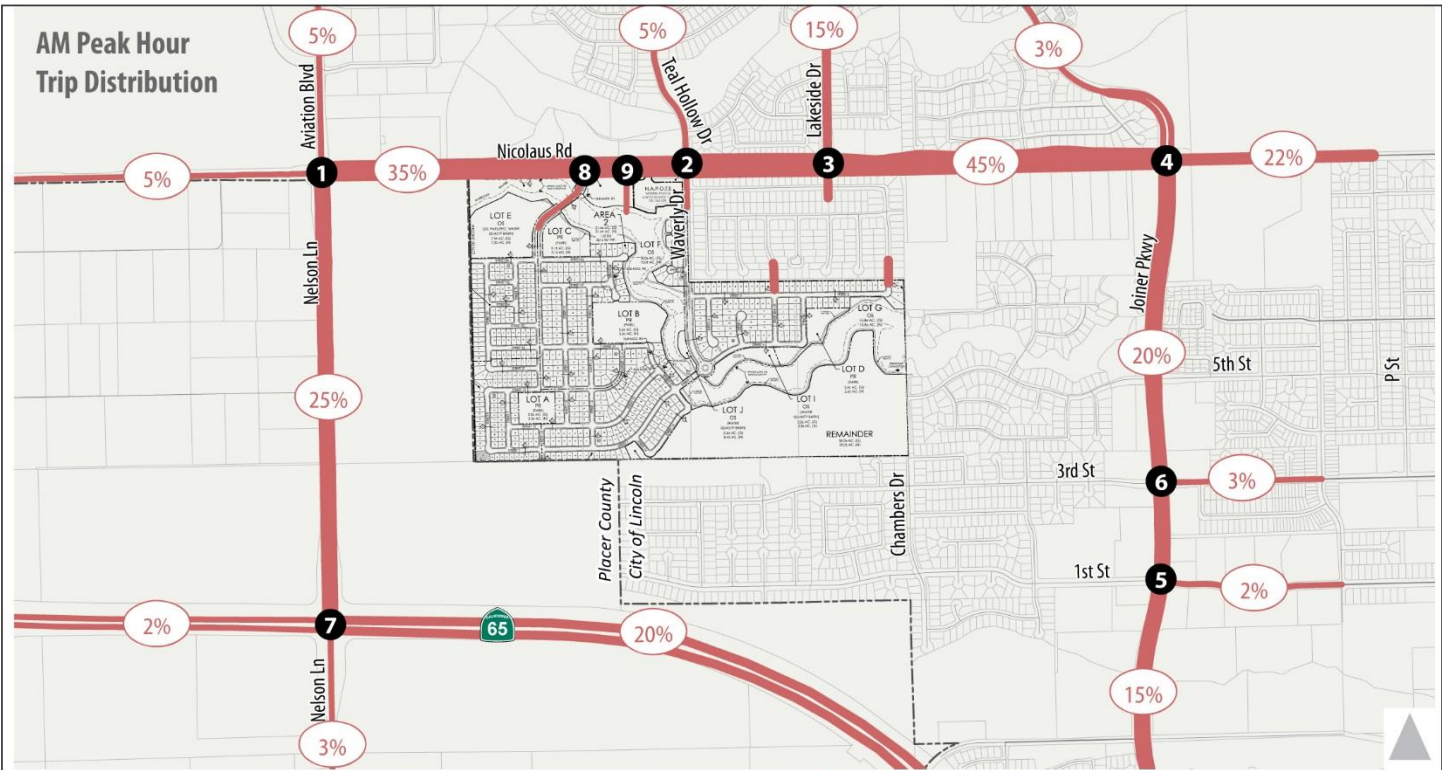
Notes: du = dwelling units
¹ Trip rate for single family and multi-family residential units based on LU categories 210 and 220, respectively, from the *Trip Generation Manual* (Institute of Transportation Engineers 2012).
² The trip generation of the sports fields is estimated based on expected travel patterns of two teams practicing at the site during a weekday afternoon. During a weekday PM peak hour, 25 inbound vehicles would be expected with only 10 outbound, representing trips to drop passengers off at the sports fields. The remaining inbound vehicles would be expected to depart after the peak hour ends.
 Source: Fehr & Peers 2016

Exhibit 4.10-5 shows the AM and PM peak hours’ expected distribution of vehicle trips (for both inbound and outbound travel directions) under existing conditions. The distribution of project trips was based on the following information and analysis methods:

1. Directionality of trips entering/exiting 204-unit residential neighborhood directly east of the project. This data revealed moderately different distribution patterns among inbound versus outbound trips. Given the project’s similar location and land uses, a comparable distribution of trips to this neighborhood is expected.
2. Existing directional travel patterns to and from the housing development south of Nicolaus Road between Waverly Drive and Lakeside Drive.
3. Existing travel patterns along Nicolaus Road, Nelson Lane, and Joiner Parkway (to understand regional travel patterns).
4. Complementary land uses (i.e., employment, retail, and schools) within the study area.

The AM peak hour distribution shows a slightly greater orientation of trips towards schools in the area (including Foskett Ranch Elementary, Glen Edwards Middle School, and Lincoln High School), while the PM peak hour distribution shows a somewhat greater directionality toward commercial areas.

Exhibit 4.10-6 shows the “project only” trips, which are derived from the aforementioned trip generation and distribution estimates.



XX% — Trip Distribution
 1 Study Intersection



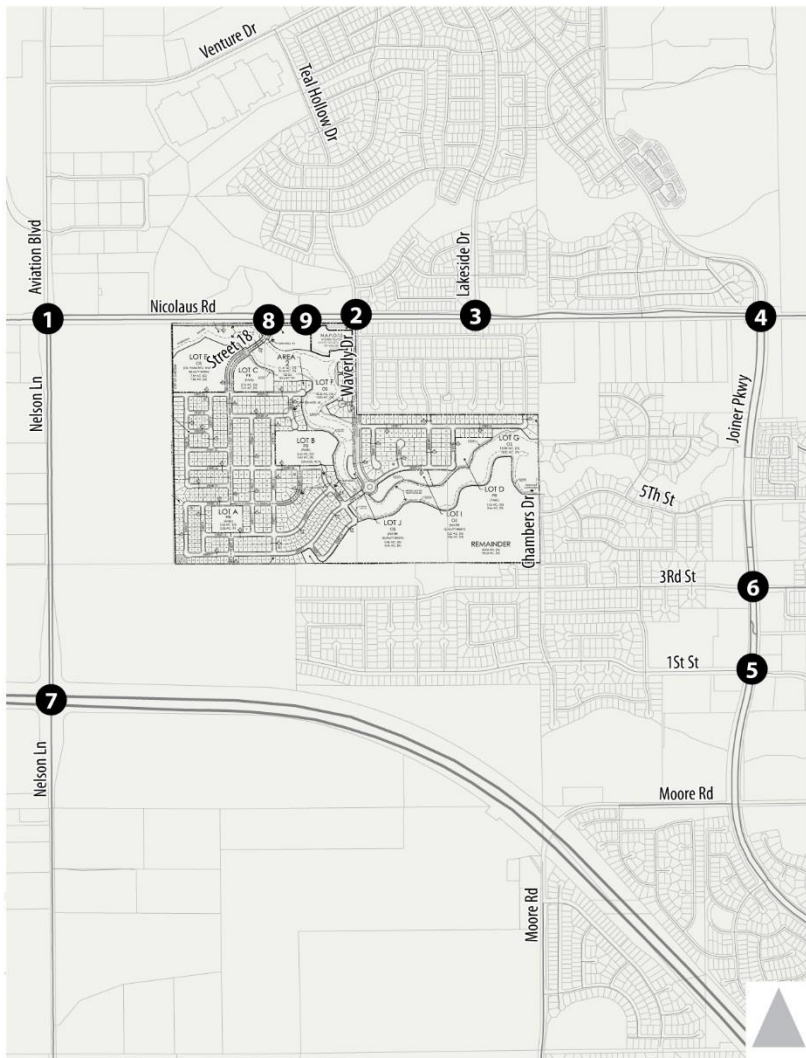
Source: Fehr & Peers 2016

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Exhibit 4.10-5

Peak Hour Project Trip Distribution





- 1** Study Intersection
- Turn Lane
- AM (PM) Peak Hour Traffic Volume
- Traffic Signal
- Stop Sign

1. Nelson Ln/Nicolaus Rd	2. Waverly Dr/Nicolaus Rd	3. Lakeside Dr/Nicolaus Rd
<p>Aviation Blvd</p> <p>Nicolaus Rd</p> <p>Nelson Ln</p> <p>0 (0) 0 (0) 6 (21)</p> <p>17 (12) 17 (12) 86 (85)</p> <p>0 (0) 6 (21) 0 (0)</p> <p>0 (0) 0 (0) 29 (143)</p>	<p>Nicolaus Rd</p> <p>Waverly Dr</p> <p>3 (2) 3 (2) 0 (0)</p> <p>1 (0) 39 (123) 29 (92)</p> <p>9 (1) 110 (74) 10 (44)</p> <p>30 (26) 7 (1) 91 (53)</p>	<p>Nicolaus Rd</p> <p>Lakeside Dr</p> <p>16 (15) 1 (1) 0 (0)</p> <p>0 (0) 48 (196) 2 (8)</p> <p>49 (9) 150 (111) 2 (7)</p> <p>5 (4) 2 (0) 7 (4)</p>
4. Joiner Pkwy/Nicolaus Rd	5. Joiner Pkwy/1st St	6. Joiner Pkwy/3rd St
<p>Joiner Pkwy</p> <p>Nicolaus Rd</p> <p>4 (4) 0 (0) 0 (0)</p> <p>0 (0) 23 (78) 0 (0)</p> <p>11 (2) 78 (45) 68 (68)</p> <p>23 (122) 0 (0) 0 (0)</p>	<p>Joiner Pkwy</p> <p>1st St</p> <p>0 (0) 51 (68) 6 (6)</p> <p>2 (12) 0 (0) 0 (0)</p> <p>0 (0) 0 (0) 0 (0)</p> <p>0 (0) 17 (101) 0 (0)</p>	<p>Joiner Pkwy</p> <p>3rd St</p> <p>0 (0) 57 (64) 11 (4)</p> <p>4 (9) 0 (0) 0 (0)</p> <p>0 (0) 0 (0) 0 (0)</p> <p>0 (0) 19 (113) 0 (0)</p>
7. Nelson Ln/SR 65	8. Nicolaus Rd/Street 18	9. Nicolaus Rd/Multi-family Dwy
<p>Nelson Ln</p> <p>SR 65</p> <p>6 (4) 11 (6) 69 (75)</p> <p>23 (122) 0 (0) 0 (0)</p> <p>2 (9) 0 (0) 0 (0)</p> <p>0 (0) 4 (12) 0 (0)</p>	<p>Nicolaus Rd</p> <p>Street 18</p> <p>34 (30) 38 (121)</p> <p>13 (61) 28 (124)</p> <p>86 (79) 109 (65)</p>	<p>Nicolaus Rd</p> <p>Multi-family Dwy</p> <p>72 (151)</p> <p>121 (116) 1 (10)</p> <p>8 (3)</p>



Source: Fehr & Peers 2016

K15010048 01 018

Exhibit 4.10-6

Project Only Trips



CUMULATIVE CONDITIONS

The cumulative analysis consists of two scenarios:

1. Cumulative No Project Conditions – This scenario represents reasonably foreseeable land developments and roadway improvements (see description below) anticipated under cumulative conditions. Under this scenario, the project site is assumed to remain undeveloped.
2. Cumulative Plus Project conditions – This scenario assumes development of the project under the same cumulative setting to measure the project’s contribution to cumulative impacts.

This study uses a version of the Placer County cumulative year TDF model that has been updated to include the SR 65 Lincoln Bypass. In addition, this version of the TDF model was utilized in the transportation impact studies for the Village 5 Specific Plan and the SUD-B project. Planned roadway improvements and land use changes from these and other previous projects are incorporated into this version of the TDF model. Within the study area, the following roadway improvements are anticipated under cumulative conditions (based on their inclusion in the City’s Public Facilities Element):

- ▲ Traffic signal at the Lakeside Drive/Nicolaus Road intersection
- ▲ Traffic signal (and additional lanes) at the Nelson Lane/Nicolaus Road intersection

No improvements were assumed at the SR 65/Nelson Lane intersection. All other study intersections were assumed to have identical lane configurations and traffic controls as existing conditions.

Cumulative land use assumptions in the study area vicinity include buildout of Lincoln Villages 5 and 7 as well as the SUD-B project which would consist of a mix of residential and retail east of Nelson Lane adjacent to the project. Road connections between SUD-B and the project are discussed in detail below. In addition, the four-acre property located directly north of the Nicolaus Road/Street 18 intersection is zoned for commercial land uses per the City of Lincoln “Zoning Map” (2013). This property was assumed to be developed and have access via a fourth leg to the Nicolaus Road/Street 18 intersection.

The project was added to the Placer County cumulative year TDF model as follows. Its land uses were represented by four geographically defined traffic analysis zones. Its proposed internal roadway system and vehicular accesses onto Nicolaus Road were also added. Under cumulative conditions, the project would also have access connections to the adjacent SUD-B project as follows:

1. Street 26 (West): Project trips would be able to access the project site through a western connection to the planned SUD-B project. This would involve accessing the SUD-B site from a major intersection on Nelson Lane, traveling east, and entering Street 26 of the project.
2. Street 10 (South): Project trips would be able to access the project site through a southern connection to the planned SUD-B project. This would involve accessing the SUD-B site from Nelson Lane and traveling to Street 10 of the project. This could also involve traveling along First or Third Street south of the project, which would be connected via streets within SUD-B (though these routes are quite circuitous to the project).

An important component of the travel demand modeling related to selecting a proper free-flow travel speed for the Street 26 / SUD-B street connection that would link Nelson Lane and Street 18. Within SUD-B, this roadway would feature horizontal curvature and include a roundabout. In addition, several residences would front onto this street connection. Within the project site, it would be designed as a residential street with a 31-foot width from face of curb. For this reason, it was decided that this roadway connection should be modeled with a free-flow speed of 30 miles per hour. This is important because this route serves as a potential cut-through or bypass to staying on Nelson Lane and Nicolaus Road. The modeling results are discussed later in this section.

To develop peak hour turning movements under both cumulative scenarios, the “difference method” was employed. The “difference method” accounts for model error through the following adjustment technique:

$$\text{Cumulative Forecast} = \text{Existing Traffic Count} + (\text{Cumulative Model Volume} - \text{Base Year Model Volume})$$

In other words, the incremental growth between the base year and cumulative versions of the TDF model are added to the existing traffic count.

THRESHOLDS OF SIGNIFICANCE

The following section describes the standards of significance utilized to analyze and determine the project’s potential impacts related to transportation and circulation. These criteria take into account the applicable level of service policies and standards from Appendix G of the CEQA Guidelines and the City of Lincoln and Caltrans adopted policies.

Intersections

Impacts to intersections are considered significant if the project would:

1. Cause the LOS to worsen from acceptable to unacceptable levels according to the following:
 - a. For all intersections within Lincoln city limits, LOS C or better is considered acceptable and LOS D-F is considered unacceptable.
 - b. For the SR 65/Nelson Lane intersection, LOS E or better is considered acceptable and LOS F is considered unacceptable.
2. Worsen unacceptable existing (or projected cumulative) operations according to the following:
 - a. For all intersections within Lincoln city limits, it is considered unacceptable if the average vehicle delay increases by five seconds or more for an intersection that is already (or projected to be) operating at an unacceptable LOS without the project.
 - b. For the SR 65/Nelson Lane intersection, it is considered unacceptable if the average vehicle delay increases by one second or more and the intersection is already (or projected to be) operating at an unacceptable LOS without project.

Bicycle and Pedestrian Facilities

The following significance criteria related to bicycle and pedestrian facilities reflect whether the project would conflict with adopted plans, policies, or programs regarding bicycle and pedestrian facilities. Impacts to bicycle and pedestrian facilities are considered significant if the project would:

1. Disrupt or interfere with existing or planned bicycle and pedestrian facilities.
2. Create a demand for bicycling or walking above the capacity which is provided or planned.
3. Create inconsistencies with adopted pedestrian or bicycle system plans, guidelines, policies, or standards.

Transit Facilities

The following significance criteria related to transit facilities reflect whether the project would conflict with adopted plans, policies, or programs regarding transit facilities. Impacts to the transit system are considered significant if the project would:

1. Create a demand for mass transit services above the capacity which is provided or planned.
2. Interfere with existing or planned transit facilities.

Emergency Vehicle Access and Emergency Evacuation

Impacts to transportation and circulation are considered significant if the project would:

1. Result in inadequate emergency access.
2. Fail to provide an adequate means for residents/visitors to evacuate the project site in a reasonable period of time in the event of an emergency.

Construction Impacts

Impacts to the transportation and circulation system are considered significant if construction activities for the project would:

1. Create a prolonged impact on travel conditions or facilities, including inadequate emergency vehicle access, traffic hazards to bicyclists and pedestrians, damage to roadbeds, or substantial truck traffic on roadways not designated as truck routes.

ISSUES OR POTENTIAL IMPACTS NOT DISCUSSED FURTHER

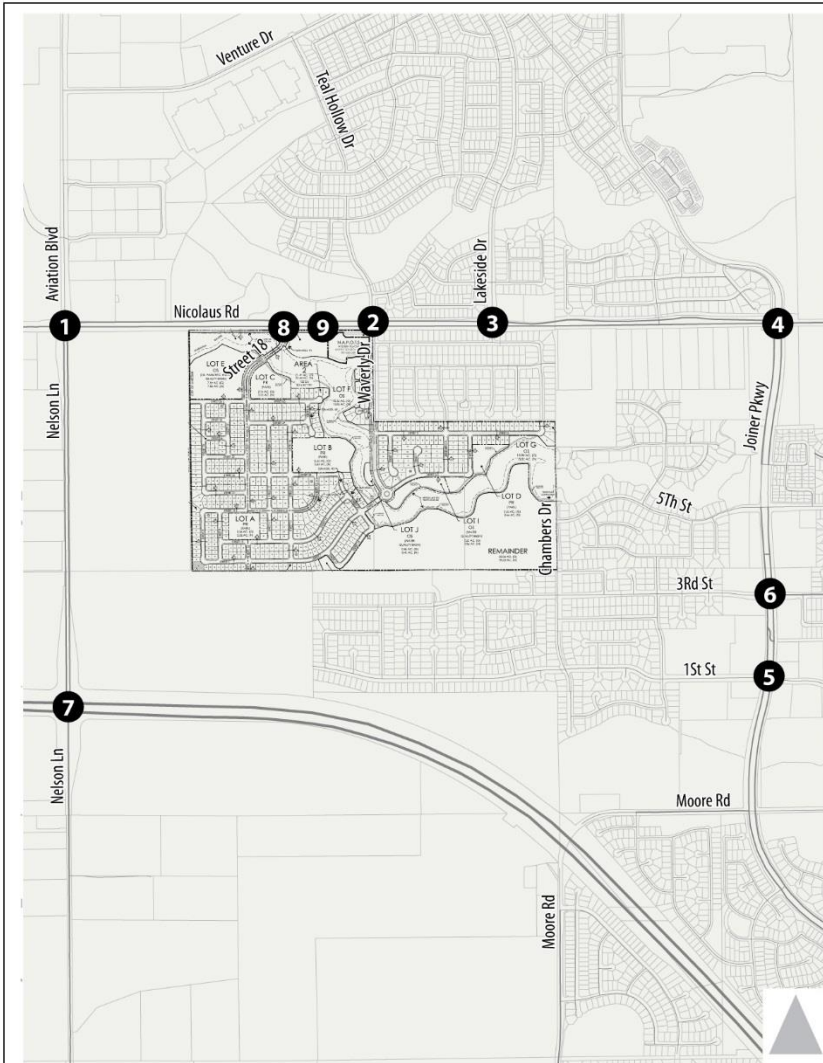
Project impacts to air, water, and rail modes of travel are considered to be less than significant due to the lack of such facilities within the study area or project consistency with any applicable policies such as land use planning requirements in the vicinity of the Lincoln Airport (see Chapter 1, Introduction).

IMPACT ANALYSIS

This section presents the results of the impact analysis, identifies significant impacts, and provides mitigations (where necessary). First, the focus is on presenting the effects of the project on existing conditions (i.e., the Existing Plus Project Condition) and addressing these effects. Then, the focus of analysis is on presenting the transportation effects of the project in the context of cumulative conditions and addressing those effects.

Existing Plus Project Conditions

The “project only” (Exhibit 4.10-6) trips developed through the trip generation and distribution processes were assigned to the roadway network by adding those new trips to existing traffic volumes. Exhibit 4.10-7 shows the peak hour turning movement volumes and lane configurations under existing plus project conditions.



- 1** Study Intersection
- Turn Lane
- AM (PM) Peak Hour Traffic Volume
- Traffic Signal
- Stop Sign

1. Nelson Ln/Nicolau Rd	2. Waverly Dr/Nicolau Rd	3. Lakeside Dr/Nicolau Rd
4. Joiner Pkwy/Nicolau Rd	5. Joiner Pkwy/1st St	6. Joiner Pkwy/3rd St
7. Nelson Ln/SR 65	8. Nicolau Rd/Street 18	9. Nicolau Rd/Multi-family Dwy

Source: Fehr & Peers 2016

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Exhibit 4.10-7

Peak Hour Traffic Volumes and Lane Configurations – Existing Plus Project Conditions



Table 4.10-5 displays the results of the existing plus project operations analysis. According to this table, the greatest increases in delay due to the project would occur at the Nelson Lane/Nicolaus Road and Lakeside Drive/Nicolaus Road intersections. All intersections would operate at LOS C or better under existing plus project conditions with the exception of the following intersection:

- ▲ Nicolaus Road/Street 18 (PM peak hour) – the stop-controlled northbound approach would experience LOS D operations. However, overall delay for all vehicles passing through the intersection would be less than five seconds, corresponding to LOS A conditions.

None of the unsignalized study intersections would satisfy warrant 3A or 3B for consideration of a traffic signal.

Table 4.10-5 Peak Hour Intersection Level of Service – Existing Plus Project Conditions										
Intersection	LOS Standard	Control	Existing Conditions				Existing Plus Project Conditions			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Delay ¹	LOS	Delay ¹	LOS	Delay ¹	LOS	Delay ¹	LOS
Nelson Lane/Nicolaus Road	C	AWSC	13.6	B	12.2	B	19.1	C	18.5	C
Waverly Drive /Teal Hollow Drive/ Nicolaus Road	C	AWSC	10.5	B	9.8	A	13.8	B	12.6	B
Lakeside Drive/Nicolaus Road	C	AWSC	14.0	B	10.8	B	20.5	C	14.2	B
Joiner Parkway/Nicolaus Road	C	Signal	18.2	B	15.1	B	19.5	B	15.7	B
Joiner Parkway/1st Street	C	Signal	21.3	C	15.3	B	21.5	C	15.3	B
Joiner Parkway/3rd Street	C	Signal	16.1	B	13.3	B	16.1	B	13.2	B
SR 65/Nelson Lane	E	Signal	22.2	C	21.1	C	23.6	C	22.1	C
Street 18/Nicolaus Road	C	SSSC	-	-	-	-	3.2 (13.9)	A (B)	4.5 (28.2)	A (D)

Notes: LOS = level of service. AWSC = All-Way Stop Control. SSSC = Side-Street Stop Control.

¹ For signalized intersections and all-way stop controlled intersections, average intersection delay is reported in seconds per vehicle for all approaches. For side-street stop controlled intersections, the delay and LOS for the most-delayed individual movement is shown in parentheses, and delay/LOS for the entire intersection is shown without parentheses.

Source: Fehr & Peers 2016

Table 4.10-6 presents ADT estimates for each study roadway segment and project access point under existing plus project conditions. As seen in the table, the project would:

- ▲ Increase traffic levels along Nicolaus Road on both sides of the project site. However, Nicolaus Road would be operating well below capacity.
- ▲ Increase the ADT at the project’s points of access, which under existing plus project conditions includes Glenmoor Lane, Waverly Drive, and Street 18. The resultant volume of 3,000 ADT on Waverly Drive is well below the capacity of a two-lane collector street. The project would add approximately 200 ADT to Glenmoor Lane.

Table 4.10-6 Two-Way Average Daily Traffic – Existing Plus Project Conditions		
Roadway Segment	Average Daily Traffic (Existing Conditions)	Average Daily Traffic (Existing Plus Project Conditions)
Nicolaus Road west of Joiner Parkway	8,700	11,500
Nicolaus Road east of Nelson Lane	7,300	9,700
First Street west of Joiner Parkway	4,300	4,300
First Street west of Chambers Drive	1,500	1,500

Table 4.10-6 Two-Way Average Daily Traffic – Existing Plus Project Conditions

Roadway Segment	Average Daily Traffic (Existing Conditions)	Average Daily Traffic (Existing Plus Project Conditions)
Third Street west of Joiner Parkway	2,000	2,000
Third Street west of Chambers Drive	800	800
Fifth Street west of Joiner Parkway	1,600	1,600
Street 18 south of Nicolaus Road	N.A.	3,400
Waverly Drive south of Nicolaus Road	900	3,000
Glenmoor Lane south of Nicolaus Road	1,300	1,500

Note: N.A. = Not Applicable

Source Fehr & Peers 2016

Impact 4.10-1: Impacts to City of Lincoln intersections.

The project would not cause any of the study intersection to deteriorate to an unacceptable LOS. Therefore, the project’s intersection impacts would be **less than significant**.

As shown in Table 4.10-5, all existing intersections currently operate at LOS C or better and none of the study area intersections would worsen to unacceptable conditions with the project. In addition, the overall intersection LOS at the new project driveway (Nicolaus Road/Street 18) would function at LOS A. Intersection impacts would be **less than significant**.

Mitigation Measure

No mitigation required.

Impact 4.10-2: Impacts to Caltrans intersections.

The project would not cause the SR 65/Nelson Lane intersection to deteriorate to an unacceptable LOS. Therefore, the project’s impacts to Caltrans intersections would be **less than significant**.

As shown in Table, 4.10-5, the SR 65/Nelson Lane intersection would experience a modest delay increase from 21 to 22 seconds per vehicle with buildout of the project. Although delay would increase, overall LOS would be maintained at the acceptable LOS C. Therefore, this impact would be **less than significant**.

Mitigation Measure

No mitigation required.

Impact 4.10-3: Impacts to pedestrian facilities.

The project would create a demand for pedestrian travel above the capacity which is provided or planned. This would be a **significant** impact.

The project is a residential development with a mixed-use commercial component that would increase demand for pedestrian facilities in the project area. Implementation of the project would include various onsite bicycle and pedestrian facilities that would generally provide adequate pedestrian access to a majority of the project site. However, the project site plan does not show construction of a sidewalk on the south side of Nicolaus Road west of Waverly Drive along the frontage of the Western Placer Unified School District bus yard. Further, there is no known right-of-way or easement available within which a sidewalk could be constructed. Consequently, pedestrians who desire to enter/exit the project via Street 18 or the mixed-use parcel would not have a continuous designated pedestrian facility to allow them to walk to/from the east

toward schools, businesses, and shops. Further, it is noted that General Plan Policy T-5.9 encourages development projects to include design of pedestrian access that enables residents to walk from their homes to places of work, recreation, and shopping. While the project would provide pedestrian access for a majority of the project site, pedestrian facilities are limited along the southern side of Nicholas Road west of Waverly Drive and would limit people from accessing areas east of the project site. This would be a potential conflict with General Plan Policy T-5.9 and result in an unmet pedestrian facility demand for the site. This would be a **significant** impact.

Mitigation Measure 4.10-3: Impacts to pedestrian facilities.

Prior to grading of the site, the project applicant shall demonstrate to the City's satisfaction that it has coordinated with Western Placer Unified School District to investigate, design, and if feasible, construct a sidewalk that would extend along the south side of Nicolaus Road west of Waverly Drive along the frontage of the Western Placer Unified School District bus yard. Construction of a sidewalk in this area appears feasible based on the 10- to 15-foot setback of the bus yard from Nicolaus Road. No sensitive habitats are located along this frontage alignment. However, this area has some changes in grades, which could pose challenges to constructing a sidewalk. Further, this alignment is subject to the control of Western Placer Unified School District and not subject to the control of the City. Nonetheless, the construction-related impacts of constructing this sidewalk have been evaluated throughout this EIR and no new significant impacts would occur with its construction.

Significance after Mitigation

Due to the uncertainty regarding the feasibility of construction of this improvement (based on unknown right-of-way availability and physical constraints such as grade), it cannot be concluded at this time that this mitigation measure would reduce this impact to a less-than-significant level. If this mitigation were implemented, the impact would be reduced to less than significant; however, this impact is considered **significant and unavoidable** at this time recognizing the potential uncertainty surrounding its implementation. No additional feasible mitigation is available.

Impact 4.10-4: Impacts to bicycle facilities.

The project would not create inconsistencies with any adopted policies related to bicycle systems or any plan bicycle system improvements. This would be a **less-than-significant** impact.

Figure 4 of the *City of Lincoln Bikeway Master Plan* (Fehr & Peers 2012) shows the following planned bicycle facilities in the project vicinity:

- ▲ Planned Class II bike lane on south side of Nicolaus Road between Waverly Drive and Nelson Lane.
- ▲ Planned Class I multi-use trail on north side of Nicolaus Road between Waverly Drive and Nelson Lane.
- ▲ Planned Class I multi-use trail that would extend southerly from Nicolaus Road west of Waverly Drive, and then easterly along Markham Ravine, and then southerly parallel to Chambers Drive to beyond First Street.

The project site plan indicates that a Class II bike lane would be constructed along the project's frontage on Nicolaus Road. The project would also construct a 10-foot multi-use trail that parallels both sides of Markham Ravine and includes connections to Street 18, Waverly Drive, and other streets within the plan area. The multi-use trail would extend from the easterly boundary of the project to a future connection near Chambers Drive (north of Fifth Street). Therefore, the project is substantially in compliance with the planned bicycle system in the *City of Lincoln Bikeway Master Plan*. This would be a **less-than-significant** impact.

Mitigation Measure

No mitigation required.

Impact 4.10-5: Impacts to transit facilities.

The project would create a demand for transit above the capacity which is provided or planned. This would be a **significant** impact.

The project is a residential development with a mixed-use commercial component that would increase demand for transit services and facilities in the project area. No dedicated bus turnout facilities are identified on project plans. However, the project plans do show the south side of Nicolaus Road east of Waverly Drive has an approximate 12-foot wide turnout area that extends for 160 feet beyond Waverly Drive before transitioning. This is slightly less than the 190-foot distance required by Detail H-17 of the *City of Lincoln Public Facilities Improvement Standards* (2004) for bus turnouts. Right-of-way is available to extend the bus turnout by 30 feet. There is a planter strip between the roadway and sidewalk along the majority of this turnout. Therefore, this turnout is not currently in suitable condition to accommodate a bus stop whose design would need to be ADA-compliant and provide an adequate waiting area (via bench or shelter) for passengers. Additionally, it is noted that the use of this turnout for buses would eliminate its exclusive use as an onstreet bicycle facility. Similarly, turnouts currently exist on both sides of Nicolaus Road directly downstream of the Nicolaus Road/Lakeside Drive/Glenmoor Lane intersection, but have similar dimensional and adjacent land use challenges.

General Plan Policy T-4.3 specifies that the City shall promote the use of public transit through development conditions requiring park-and-ride lots, bus turnouts, and passenger shelters along major streets adjacent to appropriate land uses. Because the project would increase demands for transit facilities, but design and siting constraints exist within the current project plans, the project would not provide adequate transit facilities onsite. Therefore, this would be a **significant** impact.

Mitigation Measure 4.10-5: Impacts to transit facilities.

The project applicant shall design and construct bus turnouts and shelters on arterials as required by the City and Placer County Transit. All shelters, types, and locations shall be approved by the City Engineer and Community Development Department during the review and approval of Improvement Plans.

Significance after Mitigation

Implementation of this mitigation measure would reduce this impact to a **less-than-significant** level.

Impact 4.10-6: Impacts to emergency vehicle access, evacuation, and circulation.

The project would provide adequate emergency vehicle access to and from the project site and internal circulation consistent with the City and County policies and standards. This impact would be **less than significant**.

The nearest police station to the project site is the Lincoln Police Department, located approximately 2.2 miles east of the Street 18/Nicolaus Road intersection at the intersection of 7th Street and H Street. The nearest fire station is the Lincoln Fire Station (No. 34), which is south of the Joiner Parkway/First Street intersection and about 1.8 miles away from the Street 18/Nicolaus Road intersection. Most emergency vehicles arriving from Lincoln would need to pass through the Nicolaus Road/Joiner Parkway intersection, which is equipped with emergency vehicle pre-emption. The project site includes two primary access points (i.e., Street 18 and Waverly Drive) as well as a secondary access (Glenmoor Lane). Both primary accesses would permit all turning movements and be designed to City standards that accommodate turning requirements for fire trucks. Under cumulative conditions, additional access points from the west and south via SUD-B streets would also be provided. These multiple entry/exit points provide flexibility for emergency vehicles to access or evacuate from multiple directions during an emergency.

The east and west portions of the project site are bisected by an unnamed tributary to Markham Ravine. A bridge on Street 7 over this tributary interconnects these areas. This connection results in two points of

access for the west area (i.e., via Street 18 and the bridge), and three points of access for the east area (i.e., via Waverly Drive, the bridge, and Glenmoor Lane). Waverly Drive and the northern portion of Street 18 would be designed as collector streets (with no fronting residences). This configuration would provide capacity for these streets to accommodate large volumes of traffic in the event of an evacuation. Therefore, the project would provide adequate emergency vehicle access to and from the project site consistent with the City and County policies and standards. This would be a **less-than-significant** impact.

Mitigation Measure

No mitigation required.

Impact 4.10-7: Construction impacts.

The project could result in temporary impacts to transportation facilities including closed or partially blocked roadways, heavy vehicle and truck traffic, and potential damage to roadbeds. This would be a **significant** impact.

The project would generate a variety of truck and employee trips during its construction. Because the magnitude of these trips during peak hours would be less than that of the project, absolute impacts (in terms of delay and queuing) when compared to project operations would not be significant. However, construction activity would require heavy vehicles to access the site and may include the possibility of temporary traffic lane closures, travel hazards to bicyclists and pedestrians, increased loading and potential damage to roadbeds, or substantial truck traffic on roadways not designated as truck routes. These activities could result in temporarily degraded roadway operating conditions, and introduce potentially hazardous travel conditions for vehicles, bicycles, and pedestrians. This would be a **significant** impact.

Mitigation Measure 4.10-7: Construction impacts.

Prior to issuance of a grading permit, the project applicant shall develop a Construction Traffic Management Plan (TMP) that adheres to various performance standards describe below.

- ▲ Prior to the beginning of construction for each project phase, the project applicant shall develop a Construction TMP to the satisfaction of the City's Department of Public Works, in coordination with local emergency service providers. The plan shall include items such as: the number and size of trucks per day, expected arrival/departure times, truck circulation patterns, location of truck staging areas, location/amount of employee parking, and any proposed use of traffic control/partial street closures on public streets. The overall goal of the Construction TMP will be to ensure maintenance of acceptable operating conditions and to maintain a high level of safety for all roadway users. The Construction TMP shall adhere to the following performance standards throughout project construction:
 1. Any lane closures on eastbound Nicolaus Road during project construction should be limited to a single lane during off-peak hours (9:00 a.m. to 2:30 p.m.), and shall not create unsafe travel conditions for bicyclists.
 2. Any lane closures on eastbound Nicolaus Road shall not affect operations at the WPUSD bus yard parcel on the southwest corner of the Waverly Drive/Nicolaus Road intersection.
 3. Delivery/refuse trucks shall not idle/stage on Nicolaus Road nor shall any lane closures.
 4. For construction occurring west of Waverly Drive, Street 18 shall be used by construction traffic (versus Waverly Drive)
 5. For construction occurring east of Waverly Drive, construction traffic shall use Street 18 to the extent possible and use Waverly Drive such that construction traffic does not block access to the existing residential community.

6. Roadways, sidewalks, crosswalks, and bicycle facilities shall be maintained clear of debris (e.g., rocks) that could otherwise impede travel and impact public safety.

A copy of the Construction TMP shall be submitted to local emergency response agencies and these agencies shall be notified at least 30 days before the commencement of construction that would partially or fully obstruct roadways.

Significance after Mitigation

Implementation of this mitigation measure would reduce this impact to a **less-than-significant** level because adequate access and safety of the roadways would be maintained during construction activities.

CUMULATIVE CONDITIONS

Exhibit 4.10-8 shows the “cumulative no project” peak hour volumes and lane configurations while Exhibit 4.10-9 shows the “cumulative plus project” conditions peak hour volumes and lane configurations.

Table 4.10-7 displays the results of the cumulative operations analyses. According to this table, implementation of the project would cause two intersections to worsen from LOS E to F. The project would also exacerbate LOS F intersections at one intersection.

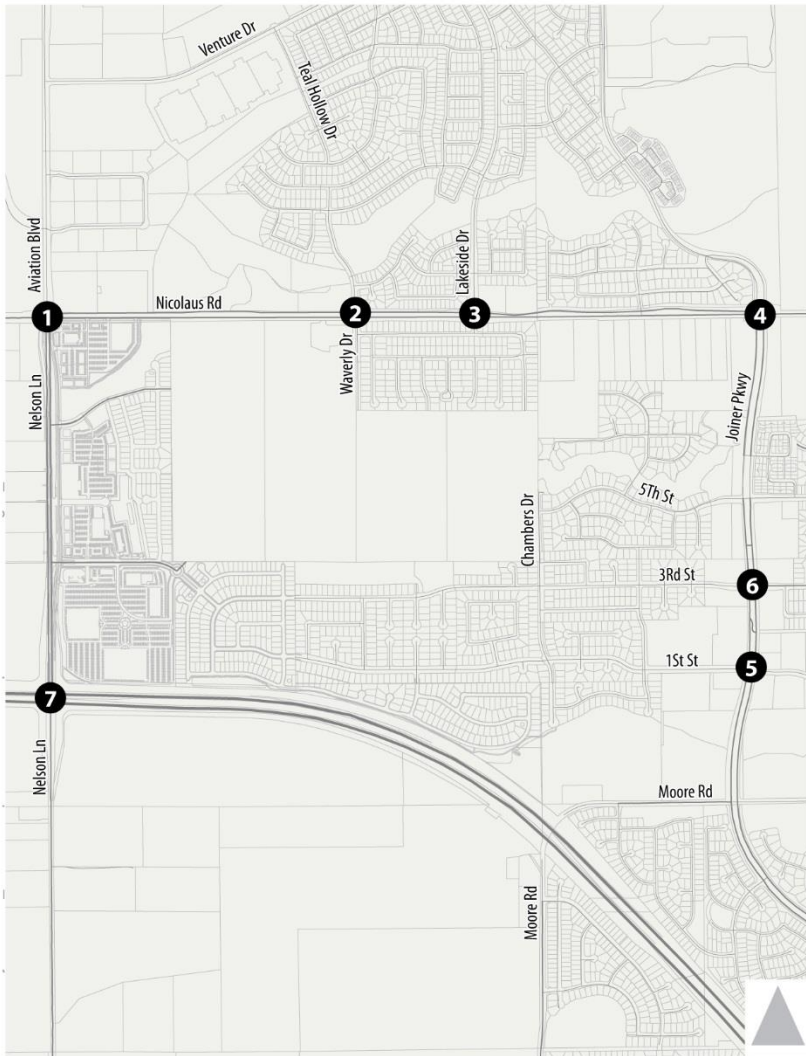
Table 4.10-7 Peak Hour Intersection Level of Service – Cumulative Conditions										
Intersection	LOS Standard	Control	Cumulative No Project Conditions				Cumulative Plus Project Conditions			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Delay ¹	LOS	Delay ¹	LOS	Delay ¹	LOS	Delay ¹	LOS
Nelson Lane/ Nicolaus Road	C	Signal	67.8	E	67.5	E	80.5	F	71.2	E
Waverly Drive/Teal Hollow Drive/ Nicolaus Road	C	AWSC	48.1	E	49.5	E	56.8	F	54.7	F
Lakeside Drive/Nicolaus Road	C	Signal	21.8	C	15.2	B	29.7	C	16.6	B
Joiner Parkway/Nicolaus Road	C	Signal	24.2	C	21.4	C	25.3	C	22.1	C
Joiner Parkway/1st Street	C	Signal	22.1	C	25.7	C	22.0	C	25.5	C
Joiner Parkway/3rd Street	C	Signal	18.1	B	21.0	C	18.0	B	20.9	C
SR 65/Nelson Lane	E	Signal	245.9	F	278.5	F	250.4	F	278.6	F
Street 18/Nicolaus Road	C	SSSC	-	-	-	-	1.8 (52.7)	A (F)	3.1 (45.6)	A (E)

Notes: LOS = level of service. AWSC = All-way stop control. **Bolded** cells represent significant impacts.

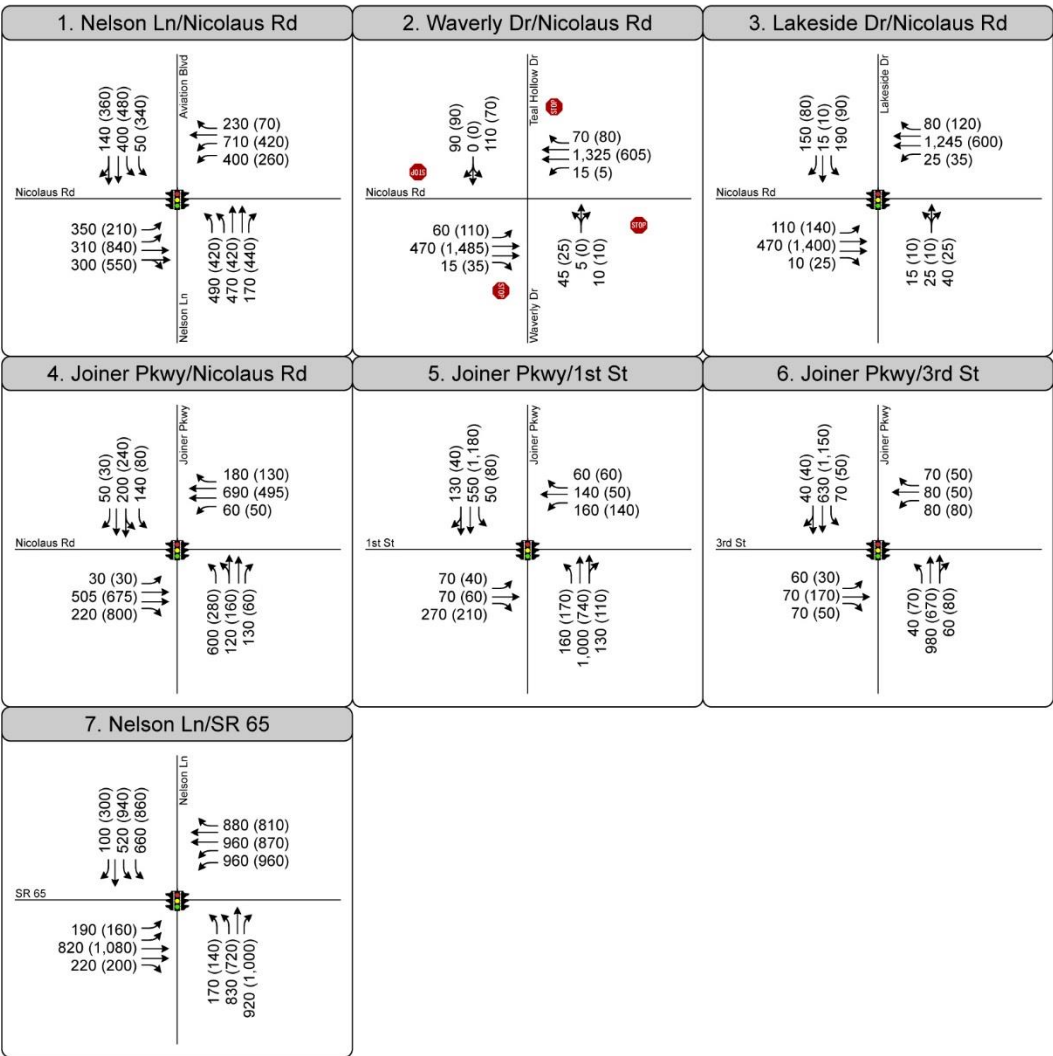
¹ For signalized intersections and all-way stop controlled intersections, average intersection delay is reported in seconds per vehicle for all approaches. For side-street stop controlled intersections, the delay and LOS for the most-delayed individual movement is shown in parentheses, and delay/LOS for the entire intersection is shown without parentheses.

Source: Fehr & Peers 2016

The Nicolaus Road/Street 18 intersection would experience LOS E or F operations for the side-street movements, but LOS A overall during each peak hour. These delays occur as a result of the large amount of through traffic anticipated on this road under cumulative conditions. The peak hour signal warrant would be satisfied during both peak hours.



- 1** Study Intersection
- Turn Lane
- AM (PM) Peak Hour Traffic Volume
- Traffic Signal
- Stop Sign



Source: Fehr & Peers 2016

K15010048 01 020

Exhibit 4.10-8

Peak Hour Traffic Volumes and Lane Configurations – Cumulative Conditions

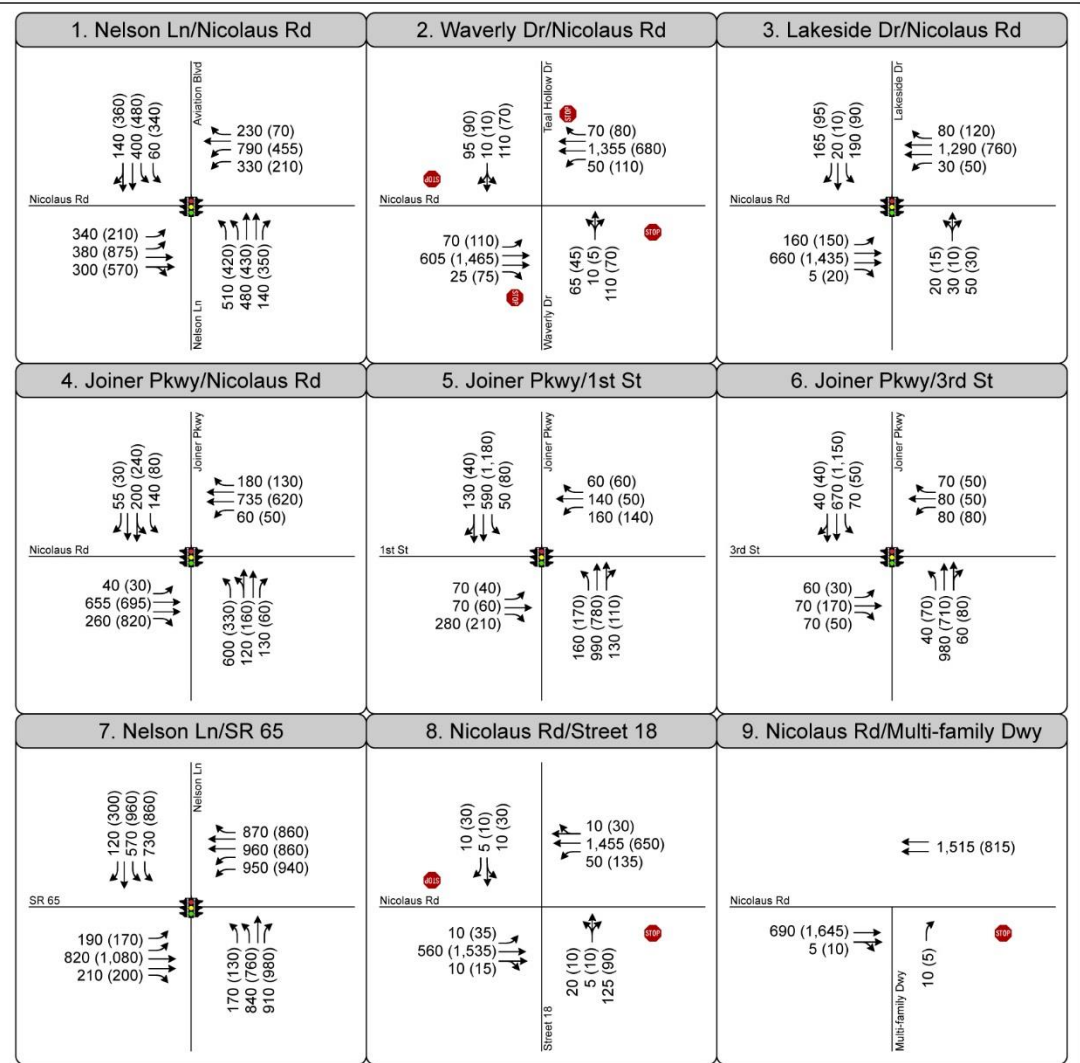




- 1** Study Intersection
- Turn Lane
- AM (PM) Peak Hour Traffic Volume
- Traffic Signal
- Stop Sign



Source: Fehr & Peers 2016



K15010048 01 021

Exhibit 4.10-9

Peak Hour Traffic Volumes and Lane Configurations – Cumulative Plus Project Conditions



The average ADT was estimated for both cumulative scenarios using the aforementioned analysis methods. The results, which are shown in Table 4.10-8, reveal the following conclusions:

- ▲ Traffic volumes on are anticipated to substantially increase along Nicolaus Road, with or without the project. This is due to background traffic growth associated with various projects within the City.
- ▲ The ADT on Nicolaus Road between Nelson Lane and Street 18 would be similar under cumulative conditions, without and with the project. This is because although the project would generate more traffic to and from the study area, some project trips are anticipated to use the SUD-B connections to the west and south of the project when traveling to or from those directions. In addition, a limited amount of cut-through traffic is expected to travel through the western SUD-B connection (via Street 26) and Street 18, bypassing the Nelson Lane/Nicolaus Road intersection.
- ▲ The SUD-B connection to the south (via Street 10) is projected to carry 3,400 ADT. Once within the project site, this traffic load would quickly disperse onto a variety of residential streets to the north and east.

Table 4.10-8 Two-Way Average Daily Traffic – Cumulative Conditions

Roadway Segment	Average Daily Traffic		
	Existing Conditions	Cumulative No Project Conditions	Cumulative Plus Project Conditions
Nicolaus Road west of Joiner Parkway	8,700	24,600	27,100
Nicolaus Road east of Nelson Lane	7,300	24,400	24,400
First Street west of Joiner Parkway	4,300	5,600	5,600
First Street west of Chambers Drive	1,500	3,500	3,700
Third Street west of Joiner Parkway	2,000	3,600	3,600
Third Street west of Chambers Drive	800	2,800	2,600
Fifth Street west of Joiner Parkway	1,600	4,100	4,100
Street 18 south of Nicolaus Road	N.A.	N.A.	1,800
Waverly Drive south of Nicolaus Road	900	900	3,100
Glenmoor Lane south of Nicolaus Road	1,300	1,300	1,600
SUD-B Connection (West) via Street 26	N.A.	N.A.	2,200
SUD-B Connection (South) via Street 10	N.A.	N.A.	3,400

Note: N.A. = Not Applicable

Source: Fehr & Peers 2016

Impact 4.10-8: Cumulative impacts to City of Lincoln intersections.

The project would cause three study intersections to deteriorate to an unacceptable LOS. Therefore, the project would have a **considerable contribution to a significant** cumulative City intersection impact.

As shown in Table 4.10-7, vehicle trips generated by the project would cause the following degradations in operations at intersections along Nicolaus Road, which are under the jurisdiction of the City of Lincoln:

1. Nelson Lane/Nicolaus Road – operations would worsen as follows:
 - a. Weekday AM peak hour: Unacceptable (LOS E) operations exacerbated by the addition of 13 seconds of added vehicle delay.

2. Waverly Drive/Teal Hollow Drive/Nicolaus Road – operations would worsen as follows:
 - a. Weekday AM peak hour: LOS E operations worsened to LOS F, with the addition of nine seconds of added vehicle delay.
 - b. Weekday PM peak hour: LOS E operations worsened to LOS F, with the addition of five seconds of added vehicle delay.

Because the project would cause the degradation to unacceptable operating conditions or the exacerbation of unacceptable operation conditions for three intersections under the cumulative condition, the project would have a **considerable contribution to a significant** cumulative City intersection impact.

Mitigation Measure 4.10-8: Cumulative impacts to City of Lincoln intersections.

- ▲ Prior to issuance of a grading permit, the project applicant shall contribute its fair share cost or fully fund, implement, and seek a third party reimbursement agreement toward restriping the westbound dedicated right-turn lane at the Nelson Lane/ Nicolaus Road intersection to be a shared right/through lane, and extending the second westbound receiving lane 300 feet. No physical changes to the roadway (e.g., new paving, or realignment) would be required with this improvement; therefore, no new significant environmental impacts would result.
- ▲ Prior to issuance of a grading permit, the project applicant shall contribute its fair share cost or fully fund, implement and seek a third party reimbursement agreement toward installation of a traffic signal at the Waverly Drive/Teal Hollow Drive/Nicolaus Road intersection. Installation of the signal would occur within the existing right of way and physical changes to the roadway (e.g., new paving, or realignment) would be required with this improvement; therefore, no new significant environmental impacts would result.
- ▲ The City at its next regularly scheduled update, shall update the City of Lincoln's Public Facilities Element (PFE) to incorporate these improvements and shall identify the timing or trigger for implementation to ensure roadway operation conditions are maintained at acceptable levels. Mitigation proposed is consistent with the projects qualifying for funding in the PFE.

As shown in Appendix F, this improvement would restore operations to LOS C during the AM and PM peak hours.

Significance after Mitigation

With implementation of the above mitigation, the project's cumulative impacts to City of Lincoln study intersections would be reduced such that the project **would not have a considerable contribution** to a significant cumulative impact. As shown in Appendix F, implementation of the above mitigation would restore operations to LOS E during the AM peak hour and decrease the delay to within five seconds of the 'no project' value at the Nelson Lane/Nicolaus Road intersection and operations at the Waverly Drive/Teal Hollow Drive/Nicolaus Road intersection would be restored to LOS C during the AM and PM peak hours.

Impact 4.10-9: Cumulative impacts to Caltrans intersections.

Under cumulative conditions, the project would exacerbate projected unacceptable operations at the SR 65/Nelson Lane intersection during the AM peak hour. Therefore, the project **would have a considerable contribution** to a significant cumulative impact to Caltrans intersections.

As shown in Table 4.10-7, the project would cause a 4.5-second increase in delay to the SR 65/Nelson Lane intersection during the AM peak hour. Because this exceeds the one-second significance criterion for impacts, this increase would be considered significant based on the City's threshold criteria. Therefore, the project **would have a considerable contribution** to a significant cumulative impact to Caltrans intersections during the AM peak hour. The increase during the PM peak hour is less than one second. Thus, the project's contribution to cumulative PM peak hour impacts would not be considerable.

Mitigation Measure 4.10-9: Cumulative impacts to Caltrans intersections.

The City of Lincoln is in the process of updating its PFE fee program, which includes funding for the improvements below. The project applicant shall pay its fair share through the City's PFE program towards the construction of the following improvements.

a) SR 65 / Nelson Lane

- Construct a new interchange at SR 65 / Nelson Lane, as supported by Lincoln General Plan Policy T-2.9. This includes the following lane configurations to provide acceptable operations at the interchange ramp terminal intersections:
 - i. SR 65 Northbound Ramps / Nelson Lane intersection:
 - 1. Northbound SR 65 off-ramp: one left-turn lane, one shared left-right turn lane, and one right turn lane
 - 2. Northbound Nelson Lane: three through lanes, one free right-turn lane onto the northbound SR 65 loop on-ramp
 - 3. Southbound Nelson Lane: three through lanes, one free right-turn lane onto the northbound SR 65 slip on-ramp
 - ii. SR 65 Southbound Ramps / Nelson Lane intersection:
 - 1. Southbound SR 65 off-ramp: one left-turn lane and one right-turn lane
 - 2. Northbound Nelson Lane: three through lanes, one free right-turn lane onto the southbound SR 65 slip on-ramp
 - 3. Southbound Nelson Lane: three through lanes, one free right-turn lane onto the southbound SR 65 loop on-ramp

Additional funding for the interchange may be provided by a proposed sales tax measure being considered for the November 2016 ballot by the Placer County Transportation Planning Agency (PCTPA). If passed, the PCTPA sales tax measure spending plan includes partial funding for the SR 65/Nelson Lane interchange. The sales tax measure would not fund the total cost of the interchange, but may replace the project applicants' fair share amount.

Significance after Mitigation

With construction of a new interchange at SR 65/Nelson Lane as described above, the traffic operations at the affected intersection would improve to an acceptable LOS. Therefore, the cumulative impact and the project's contribution to that impact would be reduced to a less-than-significant level. However, not all of the traffic-related improvements recommended above would be funded by the City's PFE. Further, even if the PCTPA fee program is approved by the voters, the program would only partially fund the necessary improvements. Because there are no assurances that full funding would be available and that Caltrans would approve construction of this interchange in a timely way, the cumulative impact would remain **significant and unavoidable and the project's contribution would be considerable**.

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5 OTHER CEQA CONSIDERATIONS

5.1 CUMULATIVE IMPACTS

CEQA requires that an EIR include an assessment of the cumulative impacts that could be associated with project implementation. This assessment involves examining project-related effects on the environment in the context of similar effects that have been caused by past or existing projects, and the anticipated effects of future projects. An EIR must discuss the cumulative impacts of a project when its incremental effect will be cumulatively considerable. Although project-related impacts may be individually minor, the cumulative effects of these impacts, in combination with the impacts of other projects, could be significant under CEQA and must be addressed (CEQA Guidelines, Section 15130(a)). Section 15130(b) indicates that the level of detail of the cumulative analysis need not be as great as for the project impact analyses, that it should reflect the severity of the impacts and their likelihood of occurrence, and that it should be focused, practical, and reasonable.

5.1.1 Cumulative Impact Analysis Methodology

Cumulatively considerable, as defined in State CEQA Guidelines Section 15065(a)(3), means that the “incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.” State CEQA Guidelines Section 15355 defines a cumulative impact as two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time. Section 15130(a)(3) of the State CEQA Guidelines states that an EIR may determine that a project’s contribution to a significant cumulative impact will be rendered less than cumulatively considerable, and thus not significant, if a project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact.

The State CEQA Guidelines (Section 15130) identify two basic methods for establishing the cumulative environment in which the project is to be considered: the use of a list of past, present, and probable future projects or the use of adopted projections from a general plan, other regional planning document, or a certified EIR for such a planning document. This analysis is based on consideration of the project in conjunction with other projects that have been, are, or will be completed in the project area.

The effects of past and present projects on the environment are reflected by the existing conditions in the project area. Probable future projects are those in the project vicinity that have the possibility of interacting with the project to generate a cumulative impact (based on proximity and construction schedule) and either:

- ▲ are partially occupied or under construction,
- ▲ have received final discretionary approvals,
- ▲ have applications accepted as complete by local agencies and are currently undergoing environmental review, or
- ▲ are projects that have been discussed publicly by an applicant or that otherwise become known to a local agency and have provided sufficient information about the project to allow at least a general analysis of environmental impacts.

5.1.2 Projects Considered in the Cumulative Analysis

Table 5-2 identifies probable future projects that were considered in the development and analysis of potential cumulative impacts and the location of each is mapped in Exhibit 5-1. These probable future projects meet the criteria described above because they are in the project vicinity and have the possibility of interacting with the Independence at Lincoln Development Project to generate a cumulative impact. Past and present projects in the area contribute to the existing setting, and are, therefore, also a component of the cumulative effects analysis.

5.1.3 Analysis of Cumulative Effects

The basis of the cumulative analysis varies by technical area. For example, air quality impacts are evaluated against conditions in the air basin. Other cumulative analyses, such as cultural resources, consider the potential loss of resources in a broader, more regional context. Cumulative impacts for resource areas are discussed below. Agricultural, forest, and mineral resources are not included in this cumulative discussion as they were determined to result in no impacts under the project.

Significance criteria, unless otherwise specified, are the same for cumulative impacts as project impacts for each environmental topic area. When considered in relation to other probable future projects, cumulative impacts to some resources could be significant and more severe than those caused by the project alone. Table 5-1 presents the general geographic areas associated with the different resources addressed in this analysis.

Table 5-1 Geographic Scope of the Cumulative Impacts	
Aesthetics	Project site and surrounding public viewpoints
Air Quality	Region (pollutant emissions that affect the air basins), immediate project vicinity (pollutant emissions that are highly localized)
Biological Resources	Defined differently for each species, based on species distribution, habitat requirements, and scope of impact from proposed activities
Cultural Resources	Project site
Geology and Soils	Project site and immediate vicinity
Greenhouse Gas Emissions	Global/statewide
Hazards and Hazardous Materials	Project site and immediate vicinity
Hydrology and Water Quality	Local and regional watershed
Land Use and Planning	Project site and adjacent land uses
Noise	Project site and immediate vicinity where project-generated noise could be heard concurrently with noise from other sources
Population and Housing	City of Lincoln and Placer County
Public Utilities, Services, and Water Supply	City of Lincoln
Traffic and Transportation	Project site and surrounding areas

Table 5-2 Cumulative Projects List				
Project Name	Location	Description	Residential Units and/or Non-Residential Area	Project Status
Projects with Entitlements – Currently under Construction				
1. Twelve Bridges Area A	West of East Joiner Parkway; south and east of Lincoln Boulevard	Development of 4,335 units on 2,989 acres of land. Plans include residential units, and a private community with a golf course, clubhouse, and athletic club.	4,335 residential units	Under construction
2. Sorrento	Lincoln Crossing Development to the north, south, and east, and Moore Road to the west	Development of 472 residential units on 156 acres.	472 residential units	Review approval for development of home by one homebuilder
3. Lakeside 6	Northwest of the intersection of Lakeside Drive and Venture Drive.	Development of 706 units on 105 acres	706 residential units	Review approval for development of home by one homebuilder
4. Clover Meadows	Along East Avenue between E. 8th Street and E. 9th Street	Development of 29 residential units on 3.1 acres	29 residential units	Under construction
5. Summerset Assisted Living and Memory Care Facility	Between 2nd and 3rd Street, along E Street	115 assisted living units and 72 memory care units on 2.76 acres	187 residential units	Under construction
6. Cal-ISO Building	500 Business Park Drive	Construction of a 35,800 square foot data and operations facility on 3.3 acres of vacant land	Two-story 35,800 square foot data and operations facility	Under construction
Projects with Entitlements – Not Currently under Construction				
7. Senior Living at Lincoln	Southwest corner of East Joiner Parkway and Bella Breeze Drive	114 assisted living units and 80 memory care units on 7.13 acres	194 residential units	Entitlements completed
8. Village 7	South and east of Moore Road, immediately west of the Aitken Ranch and Lincoln Crossing Specific Plan areas	3,285 residential units on 515.9 acres	3,285 residential units	Entitlements completed
9. Village 1	East of the Auburn Ravine on the north and south side of SR 193	5,639 residential units on 1,832 acres	5,639 residential units	Entitlements completed
Projects going through Entitlement Review – Not Currently Approved				
10. In and Out Burger	850 Groveland Lane	Restaurant with drive-thru	3,867 square foot restaurant	Conditional Use Permit and Specific Development Plan pending
11. Verizon Wireless	170 Flocchini Circle	Unmanned cell site, consisting of a 64-foot tall faux free standing water tower and associated ground equipment	None	Conditional Use Permit application pending
12. John Adams Academy	1450 Lincoln Newcastle Highway	K-12 charter school, 11.3-acre campus	65,000 to 75,000 square foot school building	Application for annexation, specific development plan/development permit, and CEQA determination pending

Table 5-2 Cumulative Projects List				
Project Name	Location	Description	Residential Units and/or Non-Residential Area	Project Status
13. Lincoln Meadows	North side of Virginia Town Road, west of Hungry Hollow Road	148 residential units on 40 acres	148 residential units	Application for annexation, pre-zoning, general plan amendment, general development plan, specific development plan/permit, and tentative subdivision map pending
14. Epick 1 & 2	South of 9 th Street, north of Auburn Ravine, and west of Liberty Lane	80-unit subdivision on 20.5 acres; located within the Village 1 Specific Plan	80 residential units	Tentative subdivision map pending
15. Village 5/Special Use District 5	Immediately west of the City, north and south of US 65	Master Planned Community, consisting of 8,100 residential units within 4,787 acres	8,100 residential units	NOP released
16. Hidden Hills	560 Oak Tree Lane, south of Oak Tree Lane	220 units planned development on 78 acres	220 residential units	Proposed - no actions taken
17. Meadowlands	Northwest corner of 9 th Street and East Avenue	Planned development, consisting of 187 single family lots on 5.47 acres, 6.60-acre park /detention lot, and 4.5-acre open space lot	187 residential units	Certified EIR; application for General Plan Amendment, rezoning, large lot tentative map, vesting tentative subdivision map, general development plan amendment, and specific development plan/permit amendment pending
18. Special Use District B - NE Quadrant	Immediately west of the City, north and south of US 65	Approximately 428 single-family units and 800,000 square feet of commercial space on 186.2 acres	428 residential units 800,000 square feet of commercial	NOP published
19. Crocker Knoll Subdivision Map	Southerly terminus of Oak Tree Lane, within the Twelve Bridges Specific Plan Area "C"	100 single family residential units on 26 acres of land	100 residential units	Application of a tentative subdivision map and general development plan amendment pending.
20. Joiner Ranch	Intersection of Nicolaus Road and Joiner Parkway, on the east and west sides of Joiner Parkway	Planned Development of medium density residential of 194 residential units	194 residential units	Proposed - no actions taken
21. Lakeside 6 - Phase 7 & 8	North of Lincoln Airpark Drive and west of existing development and Rickenbacker Lane	89-unit residential subdivision on 11 acres	89 residential units	Application of rezone and a tentative subdivision map pending

Notes: ac = acres, sf = square feet, NOP = notice of preparation

Source: Compiled by Ascent Environmental 2016

AESTHETICS

The projects described in Table 5-2 include numerous residential development projects in the City of Lincoln Sphere of Influence that could alter the visual character of areas within the project vicinity. The projects would generally be located in suburban and rural developed areas and could affect the area's visual character. As for the project, future development within the project vicinity would be guided by applicable city and county general plans and design review processes, in addition to associated planning and environmental documents.

Development of the project would not obstruct views of existing scenic vistas or important scenic resources, as no such views are currently available from public vantage points surrounding the site. The project would change the character of the project site, however, from vacant land to suburban residential. There would be a permanent loss of natural elements, including rock outcroppings and mature trees, and an increase in built features and associated light and glare.

Most of the projects identified in Table 5-2 would contribute a similar alteration to the visual setting, creating an environment that is increasingly residential in character. When compared to the projects in Table 5-2, the project represents a relatively small-scale development in an area where suburban residential land uses already dominate. Although construction of the related projects would represent a substantial visual change and a significant impact to aesthetic and visual resources in the region, the project's contribution, in the context of its location, surrounded on three sides by residential development, would not be a considerable incremental effect. Thus, the project **would not have a considerable contribution** to a significant cumulative impact on aesthetic resources.

AIR QUALITY

Cumulative emissions of ozone precursors.

The nonattainment designation of Placer County with respect to ozone is the result of the emissions of ozone precursors, ROG and NO_x, generated by cumulative development projects in the region, as well as from transport of these same pollutants from outside the region. When all sources of ROG and NO_x throughout the region are combined they can result in a severe ozone problem, as expressed by the nonattainment status with respect to the CAAQS and/or NAAQS for ozone, which is considered to be a significant cumulative impact.

As described in Impact 4.2-1, NO_x emissions during project construction would exceed PCAPCD's significance threshold of 82 lbs/day for project-specific impacts. With implementation of Mitigation Measures 4.2-1a through 4.2-1c, NO_x emissions would be reduced and construction of the project would not generate emissions of ozone precursors that exceed PCAPCD's mass emission thresholds of 82 lbs/day for project-specific impacts. Mitigation Measure 4.2-1a includes a menu of actions that, in combination, would reduce the project's net emissions of NO_x during construction by 20 percent. Because mitigated emissions would still exceed the PCAPCD NO_x threshold during overlap between grading and utilities construction for the two phases, the applicant would be required to pay a fee towards PCAPCD's Land Use Air Quality Mitigation Fund, as outlined in Mitigation Measure 4.2-1b. By providing an in-lieu fee toward this fund, the project's daily emissions of NO_x would be offset below the recommended threshold of 82 lbs per day. Therefore, the project's contribution to cumulative impacts during construction would be mitigated to a less-than-significant level through implementation of Mitigation Measures 4.2-1a through 4.2-1c.

Long-term, operation-related emissions for the project would not exceed PCAPCD's significance threshold of 82 lbs/day for ROG, NO_x, or PM₁₀ for project-specific impacts. However, operation-related emissions of ROG and NO_x would exceed PCAPCD's cumulative impact threshold of 10 lbs per day. At buildout, project operation would emit 39 lbs per day of ROG and 38 lbs per day of NO_x. The project would develop land uses in an area that is designated for urban development by the City. This is noteworthy because the amount of development anticipated by the County General Plan, as well as the general plans of other counties and cities located in the region, is used to inform air quality planning efforts, including the Ozone Attainment Plan. However, operational

emissions of ozone precursors, ROG and NO_x, would be substantially higher than PCAPCD's cumulative impact threshold of 10 lbs per day. Thus, this impact would be **cumulatively significant**.

It is important to note that while construction and operational activities of subsequent phases would overlap, PCAPCD has indicated that the two activities should be treated separately and emissions from both activities should not be considered together when compared with the thresholds. This is meant to allow that construction and operational activities be appropriately mitigated, as necessary.

Mitigation Measures

Mitigation Measure 1: Reduce long-term operation-related ROG and NO_x emissions.

The following measures shall be implemented to reduce long-term operation-related emissions of ROG and NO_x:

- ▲ Participate in the PCAPCD Offsite Mitigation Program by paying fees based on the project's contribution of pollutants (ROG and NO_x), as follows:
 - The applicant shall pay \$152 per residential unit (both single- and multi-family) to the PCAPCD's Offsite Mitigation Program (total fee due is \$95,755.44 based on the current fee rate of \$18,260 per ton of NO_x and/or ROG), to offset 2.67 tons of ROG and 2.58 tons of NO_x. The payment of the fee shall be apportioned based on the number of residential lots created per each small lot final map and shall be due prior to each final map approval.

Significance after Mitigation

Mitigation Measure 1 would reduce the project's net emissions of ROG and NO_x to less than 10 lbs per day by providing an in-lieu fee toward the funding of the PCAPCD's programs. Therefore, this impact would be reduced to a **less-than-significant** level.

Cumulative emissions of particulate matter

As shown in Table 4.2-3, the SVAB portion of Placer County is designated as attainment/unclassified with respect to the NAAQS for particulate matter with an aerodynamic diameter of 10 micrometers or less (PM₁₀) but as nonattainment with respect to the CAAQS. Like ozone, PM₁₀ has a similar cumulative, regional emphasis when particulate matter emitted by multiple projects are entrained into the atmosphere and build to unhealthy levels over time. Emissions of PM₁₀ from project construction were determined to be less than significant as discussed in Impact 4.2-1 and because operations would not exceed PCAPCD's recommended threshold of 82 lbs/day as discussed under Impact 4.2-2. The threshold of 82 lbs/day is considered to represent the allowable incremental contribution of PM₁₀ by a project while still progressing toward overall attainment within Placer County. Because emissions-generating construction activity would be short-term and intermittent, and because most of the operational emissions of PM₁₀ would be from mobile sources and therefore dispersed among area roadways, project-generated emissions of PM₁₀ would not be cumulatively considerable.

Construction-generated PM₁₀, however, also has the potential to cause significant local problems during periods of dry conditions accompanied by high winds, and during periods of heavy earth disturbing activities. PM₁₀ may have cumulative local impacts if, for example, several grading or earth-moving projects are underway simultaneously at nearby sites. Of the reasonably foreseeable cumulative projects (see Table 5-2 above), the Special Use District B - NE Quadrant and Cal-ISO Building are located in the immediate vicinity of the project and could generate PM₁₀ emissions in close proximity to construction that would take place under the project and be constructed at the same time. Dust emissions from other cumulative projects would dissipate due to intervening distance from the project site. Additional project construction would comply with dust regulations as outlined by PCAPCD Rule 228 and other projects would be required to do the same. Therefore, even if some construction of the land uses proposed under the project occurred simultaneously with the cumulative projects in the immediate vicinity, and PM₁₀ from the project site reached a local sensitive receptor concurrently with PM₁₀ generated by construction of the other projects, the contribution from the project would be minor. Emissions from the project would not exceed the PCAPCD 82 lbs/day threshold, which has been developed to ensure that individual contributions of PM₁₀ from project-

related activities would not cause a substantial effect to air quality. Further, if the PM₁₀ emissions from the other reasonably foreseeable projects (see Table 5-2) within the project vicinity were found to exceed the PCAPCD thresholds of 82 lbs/day, mitigation to reduce such emissions would be required to be implemented; therefore, the incremental contribution of PM₁₀ from the project would not make a substantial contribution to cumulative PM₁₀ emissions.

Because project-generated PM₁₀ emissions would not interfere with progress toward overall attainment of the CAAQS and NAAQS for PM₁₀ within Placer County, or contribute to high localized concentrations in combination with simultaneous, nearby construction projects, they would not be cumulatively considerable and, therefore, would be less than significant.

Placer County is designated as attainment/unclassified with respect to the CAAQS for PM_{2.5} and nonattainment-partial with respect to the NAAQS for PM_{2.5}. Because PCAPCD does not recommend a mass emission threshold for evaluating PM_{2.5} emissions but does so for PM₁₀, the analysis of PM_{2.5} generally follows the analysis of PM₁₀. For the reasons described above for PM₁₀, the project would not make a significant contribution to a significant regional or local cumulative PM_{2.5} impact. The project **would not result in a considerable contribution** to a cumulative impact.

Mitigation Measures

No mitigation is required.

Cumulative exposure to mobile-source carbon monoxide (CO) concentrations

As stated under Impact 4.2-3, mobile-source carbon monoxide (CO) generation is less of a concern today as in prior decades; CO has been reduced to such an extent by modern vehicles and the total state vehicle fleet that CO “hotspots” (CO emissions above air quality standards adopted for the purpose of protecting against exposure concentrations that can affect oxygen levels in blood leading to chronic and acute health risks, see Table 4.2-1) are rare. The potential for hotspots is associated with large, highly congested intersections, such as major, multi-lane highways. Under future conditions, when traffic from cumulative development is considered (see Cumulative Impacts to Intersection Operations from Chapter 4.10, “Transportation and Circulation”), a few signalized intersections would operate at level of service (LOS) E or F. However, the volume of traffic at these intersections would not be sufficient to create a CO hotspot. Traffic resulting from project implementation would not result in emissions of CO such that the Sacramento Metropolitan Air Quality Management District’s (SMAQMD’s) threshold of 31,600 vehicles or more per hour at an affected intersection would not be exceeded. Further, mobile-source CO emissions would not result in, or substantially contribute to, concentrations that exceed the 1-hour ambient air quality standard of 20 ppm or the 8-hour standard of 9 ppm, and this cumulative impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Cumulative emissions of sensitive receptors to toxic air contaminants

As stated under Impact 4.2-4, the project would not generate significant health risks associated with toxic air contaminants; it would not expose any single receptor to a level of cancer risk that exceeds an incremental increase of 10 in one million, or to a noncarcinogenic Hazard Index of 1. This conclusion is based on the fact that construction-generated emissions of diesel PM would be short-term and intermittent, and would not occur for an extended period of time near any potential onsite receptors. Because the duration of construction would occur over a period of four years (2016-2019) and the location of construction would vary depending on the phase of the project, sensitive receptors near the project site would not be subject to prolonged exposure of TAC concentrations. Also, idling time of delivery trucks would be limited to 5 minutes by the California airborne toxics control measure incorporated in Title 13, Section 2485 of California Code of Regulations. The same conclusion would apply to diesel PM emissions associated with the construction of other development projects outlined in Table 5-2. Cumulative projects in the project vicinity could involve the use of diesel equipment that would generate diesel PM emissions in close proximity to construction that

would take place under the project and be constructed at the same time. However, the use of off-road heavy-duty diesel equipment would occur only during construction. Other projects would also be subject to construction period limitations listed above. Therefore, project-generated emissions of diesel PM would not make a significant contribution to a significant cumulative impact, if one were to occur. For the reasons described above, it is not anticipated that the levels of health risk exposure from the project, in combination with health risk exposure of any other toxic air contaminant-emitting sources, would reach levels which would be considered a significant cumulative impact. The project **would not result in a considerable contribution** to a cumulative impact.

Mitigation Measures

No mitigation is required.

Cumulative emissions of sensitive receptors to odors

The project would not generate significant odors, as discussed under Impact 4.2-5. There are no existing facilities in the project vicinity typically considered as sources of objectionable odors such as wastewater treatment facilities, landfills, food processing facilities, and livestock operations. While a sewer lift station might be constructed in the southern portion of the project site, its components would be placed underground and/or enclosed in an aboveground structure, which would provide both noise attenuation and odor control. None of the cumulative projects identified in Table 5-2 include land uses that would generate objectionable odors that would affect a substantial number of people or that would travel far enough to interact with other potential odor sources. There are no facilities or activities in the vicinity of the project site that would interact to create a significant cumulative odor impact, and neither the project nor reasonably foreseeable future projects would generate objectionable odors that would change this condition. On a cumulative basis, **no impact** would occur.

Mitigation Measures

No mitigation is required.

BIOLOGICAL RESOURCES

A list of cumulative projects is found in Table 5.1-1. Approximately 5,091 acres of reasonably foreseeable construction projects are planned within the region and would combine cumulatively with the project. These projects would likely remove some natural habitats permanently for wildlife, as well as increase human presence and disturbance in the region. Therefore, a significant cumulative impact related to special-status species and habitat exists.

As described in Section 4.3.1, “Environmental Setting,” the project site is surrounded by agricultural uses, open space uses, and limited residential development, thus providing habitat for biological resources. Development of the project would primarily result in the short-term loss of habitat available for use by various special-status animal species because of construction disturbance. However, these potential impacts on biological resources would be mitigated to less-than-significant levels with implementation of the mitigation measures described in Section 4.3.3, “Environmental Effects and Mitigation Measures”. Construction of crossings over Markham Ravine and its tributary would be designed to minimize potential effects to the waterway, its integrity, and any protected or sensitive habitats through implementation of Mitigation Measure 4.3-1; impacts from construction to protected wetlands, waters, and streamside habitats would be mitigated with avoidance and minimization measures during construction as defined by a Streambed Alteration Agreement and a Storm Water Prevention Plan as required by Mitigation Measure 4.3-1. Loss of less than a quarter acre of valley oak woodlands would be mitigated through onsite compensation of similar habitat and individual protected trees would be protected from construction or compensated for onsite through Mitigation Measure 4.3-7. No other regionally sensitive habitats would be removed by the project. Therefore, the incremental contribution of the project to special-status animal species as well as sensitive habitats, protected waters, and streamside habitats in the region would not be cumulatively considerable.

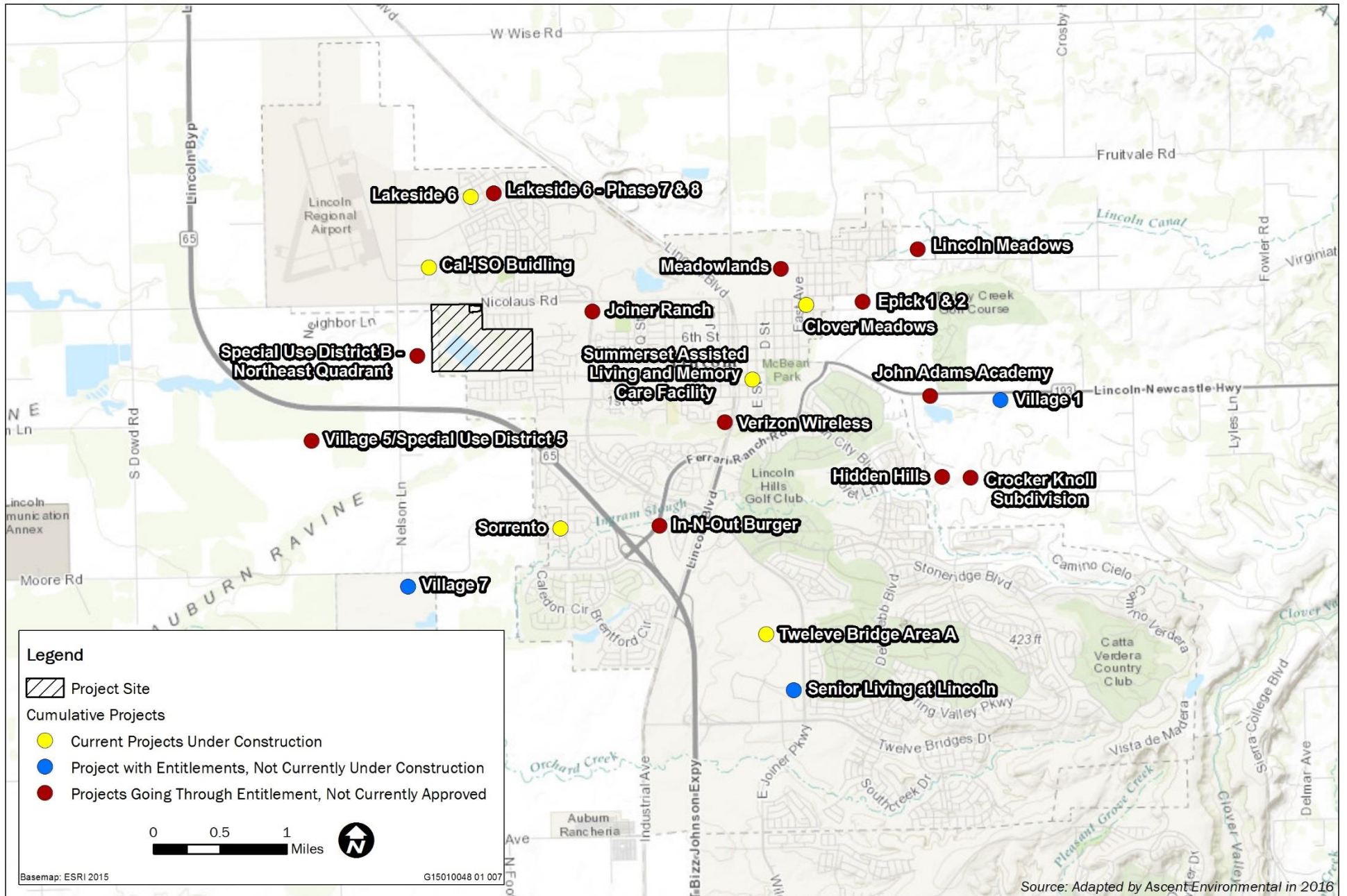


Exhibit 5-1

Projects Considered in the Cumulative Analysis



The project is not expected to have a long-term adverse effect on biological resources because, as described in Section 4.3.3, “Environmental Effects and Mitigation Measures” Operation of the development and its associated features would not substantially affect movement corridors, or large or important populations of any special-status plant and animal species as described in 4.3.3 under ‘Issues Not Discussed Further’ and Impacts 4.3-2, 4.3-3, 4.3-4, 4.3-5, 4.3-8, and 4.3-9. While there would be a short-term loss of mature oak woodlands as compensation plantings age, the long-term result would be a greater amount of oak woodlands onsite which would provide habitat for wildlife and increase oak woodlands within the region. No other regionally sensitive habitats would be affected in the long-term by the project. Therefore, the incremental contribution from project operations to special-status species, migratory wildlife, and sensitive habitats would not be cumulatively considerable.

It is not expected that project construction or operation would eliminate any resident or migratory animal or bird species through disturbance from construction activities or presence of the development. Additionally, removal of sensitive vegetation types important for wildlife such as oak woodlands would be mitigated through replacement onsite and would not substantially contribute to oak woodland decline or the decline of associated special-status species. Therefore, while cumulative impacts to biological impacts within the region are considered significant, the project’s contribution to cumulative impacts on native wildlife populations **would not have a considerable contribution** to a significant cumulative impact on biological resources.

CULTURAL RESOURCES

The City and western Placer County are within an archaeologically and historically rich region that has been inhabited by prehistoric and historic-period peoples for thousands of years, and within a region that has produced significant paleontological resources. Urban development that has occurred over the past several decades in the greater project region has resulted in the demolition or alteration of innumerable significant historical resources and of impacts to scientifically significant paleontological resources, and it is reasonable to assume that present and future development activities would continue to damage and/or destroy significant cultural or paleontological resources, which would be a significant cumulative impact. The project could contribute to this loss of significant cultural and paleontological resources. Numerous state and federal laws, regulations, and statutes are also in place that seek to protect cultural and paleontological resources, as discussed above. These would apply to development within and outside the City. In addition, the City’s General Plan provides local policies that safeguard cultural and paleontological resources from unnecessary impacts. These policies include inventory and evaluation processes and require consultation with qualified archaeologists or paleontologists in the event that previously undiscovered cultural materials are encountered. Even so, it is not always feasible to protect these resources, particularly when preservation in place would preclude implementation of development projects and for this reason the cumulative effects of the project and related projects in the region would be considered a potentially significant cumulative impact.

Because the project has the potential to adversely affect undocumented significant cultural and paleontological resources that are unique and non-renewable members of finite classes, the project’s incremental contribution to these cumulative effects would itself be potentially cumulatively considerable. However, implementation of Mitigation Measures 4.5-1 through 4.5-4 would reduce these effects by ensuring avoidance of resources or proper documentation of discovered resources. Thus, the project **would not have a considerable contribution** to a significant cumulative impact on cultural resources.

GEOLOGY AND SOILS

Impacts on geology and soils are generally localized and do not result in regionally cumulative impacts. Unless a project would alter the soils and rock underlying other adjacent projects or affect surrounding land due to landslides, impacts related to geology, soils, and seismic hazards would be limited to the project site. The geographic scope of cumulative impacts related to geology, soils, or seismic hazards, therefore, includes only projects immediately adjacent to the project site.

Cumulative projects would be constructed in accordance with the most recent version of the California Building Code construction and seismic safety requirements and recommendations contained in project-specific geotechnical reports. It is anticipated, therefore, that any potential impacts associated with geologic and soil conditions could be mitigated within these project sites. Cumulative geology and soils impacts would be less than significant.

Lands within Placer County are susceptible to ground shaking, thus the placement of housing on the project site and vicinity could result in exposure of people and structures to unstable geologic units. If these areas become unstable, geologic hazards such as landslide, lateral spreading, subsidence, liquefaction, or collapse could result. However, with the incorporation of Mitigation Measures GEO-1, a geotechnical engineer will prepare a detailed geotechnical report incorporating the specific mitigation and seismic hazards pursuant to State law, as detailed in the California Building Code, and as required by the City of Lincoln building permit process to ensure that structures and infrastructure can withstand ground accelerations expected from seismic activity. Thus, because this site-specific impact would be reduced to a less-than-significant level, the project **would not have a considerable contribution** such that a new - significant cumulative impact would occur.

GREENHOUSE GAS EMISSIONS

Cumulative Greenhouse Gas Emissions

GHG emissions generated by construction and operation of the project (see Impacts 4.3-1 and 4.3-2) are inherently cumulative. GHG emissions from one project cannot, on its own, result in changes in climatic conditions; therefore, the emissions from one project must be considered in the context of their contribution to cumulative global emission. The analysis concludes that the project would be consistent with adopted long-range plans and policies designed to reduce communitywide GHG emissions, consistent with Assembly Bill 32, SACOG's MTP/SCS, and other local and State policies. Therefore, the project **would not result in a cumulatively considerable contribution** to a significant cumulative impact related to global climate change.

Cumulative Impacts of Climate Change on the Project

Impact 4.3-3 concludes that the project would include sufficient design features to increase the development's resiliency to elevated risk of wildfires and flooding that may become more prevalent with climate change. Because the City of Lincoln contains policies that enhance its resiliency to these potential effects from climate change, buildout of the project **would not have a considerable contribution** to any potential significant cumulative impact related to the effects of climate change on existing and future projects.

HAZARDS AND HAZARDOUS MATERIALS

There is no existing significant adverse cumulative condition relating to hazards and hazardous materials in the vicinity of the project and, alone, the incremental impacts of the project would not cause a significant adverse cumulative impact. Further, construction activities associated with the project would not substantially increase the hazard potential in the study area, and operation of the project would not cause a significant adverse cumulative impact. Cumulative hazards and hazardous materials impacts would be **less than significant**.

HYDROLOGY AND WATER QUALITY

A list of cumulative projects is found in Table 5.1-1. Approximately 5,091 acres of reasonably foreseeable construction projects are planned within the region and would combine cumulatively with the project. In addition, a small area within the southwest corner of the project site (i.e., within Lot 4) would be deeded to the City for construction of a domestic groundwater well. This well would expand the City's existing groundwater system. These projects would likely increase impervious surfaces, increase storm water runoff, degrade water quality, and result in impacts to groundwater and floodplains. Therefore, a significant cumulative impact related to hydrology and water quality exists.

As described in Section 4.6.1, “Environmental Setting,” the project site is within the Markham Ravine watershed and Markham Ravine and Markham Ravine lower tributary are the only drainages within the project site. Development of the project would primarily result in the short-term degradation of water quality available because of construction disturbance. However, the potential impacts on water quality would be mitigated to a less-than-significant level with implementation of the mitigation measure described in Section 4.6.3, “Environmental Effects and Mitigation Measures”. Appropriate BMPs would be implemented during construction to prevent water quality degradation, and adequate surface drainage control would be designed by the project civil engineer in accordance with the latest applicable edition of the California Building Code with implementation of Mitigation Measure 4.6-1. Therefore, the incremental contribution of the project to water quality would not be cumulatively considerable.

The project is not expected to have long-term adverse effects on hydrology or water quality because, as described in Section 4.6.3, “Environmental Effects and Mitigation Measures” operation of the development and its associated features would not a substantial adverse effect on storm water drainage systems, water quality, groundwater, or flood hazards as described in 4.3.3 under ‘Issues Not Discussed Further’ and Impacts 4.6-2, 4.6-3, 4.6-4, 4.6-5. Although a groundwater well would be constructed on the project site as a separate project in the future, the project would not result in the substantial depletion of groundwater or interference with groundwater recharge. Therefore, the incremental contribution from project operations to hydrology and water quality would not be cumulatively considerable. The project **would not have a considerable contribution** to a significant cumulative hydrology and water quality impact.

NOISE

The nature of noise and vibration effects are such that project-related construction activities would have to occur simultaneously and in close proximity to those of other projects for a cumulative effect to occur. Based on a review of cumulative projects, Joiner Ranch, Cal-ISO Building, and Special Use District B-Northeast Quadrant are the projects in closest proximity to the project site that could potentially combine to increase temporary noise associated with construction and vibration. However, potential construction activities associated with these projects would be located at least 2,000 feet from construction activities of the project. At this distance, maximum noise levels from the project would be reduced to 49 dBA L_{eq} and 53 dBA L_{max} . Noise levels of typical construction equipment range from 73-85 dBA. Due to the logarithmic nature of combining noise levels, it takes a doubling of the noise source to result in a 3 dB increase. Thus, assuming that construction noise levels at these other nearby projects would be similar to those described for the project, the addition of 53 dBA L_{max} to 95 dBA L_{max} , would not result in a noticeable increase in noise. Therefore, even if construction activities from the project were to combine with other cumulative projects, the project’s construction noise would not be considered substantial. Vibration levels associated with the project would also dissipate with distance from the site and would be negligible beyond the project site. Further, mitigation is in place that would ensure proper noise-reducing practices and technology for all construction equipment and would require the staging of equipment as far away from receptors as possible. Therefore, because construction noise would be reduced to the extent feasible, construction from other projects would be located substantial distances from the project such that project-generated construction-noise would not be considerable, the project short-term construction-generated noise and vibration (i.e. below FTA maximum acceptable level of 80 VdB with respect to human response for residential uses [i.e., annoyance] at nearby existing vibration-sensitive land uses) would not result in a substantial contribution to noise effects, and cumulative noise and vibration impacts would be less than significant.

In regards to long-term ambient traffic-related noise levels, cumulative noise levels could be affected by additional buildout of surrounding land uses and increases in vehicular traffic on affected roadways. Several new large developments (e.g., Joiner Ranch, Cal-ISO Building, and Special Use District B-Northeast Quadrant) and others (see Table 5-2, Chapter 5 of this EIR, for a complete list) are planned in the project area. These projects would result in additional traffic-related noise on surrounding roadways and would contribute to traffic-noise increases within the City of Lincoln. As shown by the traffic analysis, average daily trip volumes (ADT), more than double on all affected roadways. Thus, a traffic-noise in the cumulative no project scenario would result in a substantial increase in noise over existing conditions without the project. As discussed

under Impact 4.7-4, implementation of the project would result in additional traffic on roadways but the incremental increase in traffic as a result of the project would not result in a perceptible increase in noise (i.e., less than 3 dB, which is perceived as barely noticeable by people). Based on traffic modeling conducted for the project, the same is true for the cumulative plus project condition. The project's contribution to the ADT levels would not exceed a 10 percent increase. The project **would not have a considerable contribution to a significant noise impact**.

POPULATION AND HOUSING

The geographic context for the cumulative impacts associated with population and housing issues are located in the Sacramento Region and the City of Lincoln, both of which are expected to undergo significant population growth over the next few decades. This growth has been anticipated and planned for in regional planning documents. Therefore, overall population and housing impacts would be less than significant.

Construction of the projects identified in Table 5-2 is currently underway or planned for the near future, increasing the demand for construction workers. As discussed for the project, there are many populated areas in the region and a large pool of construction personnel to staff the anticipated development. Furthermore, even if some construction workers from outside the region were employed at the project site, construction workers typically do not change residences when assigned to a new construction site, and substantial permanent relocation of these workers to the area is not anticipated.

The City of Lincoln has been experiencing substantial population growth recently, increasing from 11,205 to 42,819 people between 2000 and 2010 (City of Lincoln 2013). Population growth is projected to increase to approximately 92,350 people by 2035 and this growth is being planned for through local and regional planning agencies. The City's 2013-2021 Housing Element assumes planned and entitled residential projects will provide approximately 11,208 units on approximately 1,812 acres of land and development of the project site for residential uses as a way of addressing housing needs within Lincoln (City of Lincoln 2013: 49-52). Development of 74 acres of the project site with a maximum 343 residential units was accounted for in the City's 2013-2021 Housing Element. However, the project as proposed allows for 575 units on 93 acres of the site. As shown in Table 5-2, a total of 5,639 residential units are currently proposed as part of entitled residential projects. Therefore, the additional units proposed within the project site (i.e. 232) would fall within the total units provided for planned and entitled residential projects in the Housing Element. The project's population increase is not substantial in comparison to the projected population increase, and the number of residential units planned (Table 5-2). Therefore, the project **would not have a considerable contribution** such that a new significant cumulative population and housing impact would occur.

PUBLIC UTILITIES, SERVICES, AND WATER SUPPLY

As indicated in Table 5-2, the City's anticipated projects would result in a substantial increase in residential units. This would result in a cumulative demand on public utilities, services, and water supply. Because there is adequate capacity at the wastewater treatment plant, material recovery facility, and landfill, a cumulative impact on these facilities is not anticipated. Capacity increasing infrastructure upgrades necessary to supply the water to existing and future users are planned by the City and water provider. Overall, cumulative public utilities, services, and water supply impacts would be less than significant. Further, individual projects would not cause a new significant cumulative impact because each project would be required to pay fees that contribute to additional staff and facility space equivalent to the anticipated demands of the project. Because the project would be conditioned to provide appropriate fees to meet demand generated by the development, it **would not have a considerable contribution** such that a new significant cumulative impact on public utilities, services, and water supply would occur.

TRAFFIC AND CIRCULATION

Section 4.10, "Transportation and Circulation," includes a discussion of cumulative impacts based on the projects listed in Table 5-1 and anticipated capital improvements. Cumulative (2035) lane geometries and peak-hour turn movement volumes are presented in Exhibits 4.10-8 and 4.10-9. Table 4.10-7 present the peak-hour intersection operating conditions for this analysis scenario.

The project would cause the degradation to unacceptable operating conditions or the exacerbation of unacceptable operation conditions for three intersections under the cumulative condition. Implementation of Mitigation Measure 4.10-8 would restore operations to LOS E during the AM peak hour and decrease the delay to within five seconds of the 'no project' value at the Nelson Lan/Nicholas Road intersection and operations at the Waverly Drive/Teal Hollow Drive/Nicolaus Road intersection would be restored to LOS C during the AM and PM peak hours. Thus, because the project would meet significance criteria for intersection, it **would not have a considerable contribution** to a significant cumulative transportation impact.

5.2 GROWTH-INDUCING IMPACTS

CEQA specifies that growth-inducing impacts of a project must be addressed in an EIR (CCR Section 21100[b][5]). Specifically, CCR Section 15126.2(d) states that the EIR shall:

Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also, discuss the characteristics of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

Direct growth inducement would result if a project involved construction of new housing, which would facilitate new population to an area. Indirect growth inducement would result, for instance, if implementing a project resulted in any of the following:

- ▲ substantial new permanent employment opportunities (e.g., commercial, industrial, or governmental enterprises);
- ▲ substantial short-term employment opportunities (e.g., construction employment) that indirectly stimulates the need for additional housing and services to support the new temporary employment demand; and/or
- ▲ removal of an obstacle to additional growth and development, such as removing a constraint on a required public utility or service (e.g., construction of a major sewer line with excess capacity through an undeveloped area).

The State CEQA Guidelines do not distinguish between planned and unplanned growth for purposes of considering whether a project would foster additional growth. Therefore, for purposes of this EIR, to reach the conclusion that a project is growth inducing as defined by CEQA, the EIR must find that it would foster (i.e., promote, encourage, allow) additional growth in economic activity, population, or housing, regardless of whether the growth is already approved by and consistent with local plans. The conclusion does not determine that induced growth is beneficial or detrimental, consistent with Section 15126.2(d) of the State CEQA Guidelines.

If the analysis conducted for the EIR results in a determination that a project is growth-inducing, the next question is whether that growth may cause adverse effects on the environment. Environmental effects resulting from induced growth (i.e., growth-induced effects) fit the CEQA definition of “indirect” effects in Section 15358(a)(2) of the State CEQA Guidelines. These indirect or secondary effects of growth may result in significant environmental impacts. CEQA does not require that the EIR speculate unduly about the precise location and site-specific characteristics of significant, indirect effects caused by induced growth, but a good-faith effort is required to disclose what is feasible to assess. Potential secondary effects of growth could include consequences – such as conversion of open space to developed uses, increased demand on community and public services and infrastructure, increased traffic and noise, degradation of air and water quality, or degradation or loss of plant and wildlife habitat – that are the result of growth fostered by the project.

The decision to allow those projects that result from induced growth is the subject of separate discretionary processes by the lead agency(ies) responsible for considering such projects. Because the decision to allow growth is subject to separate discretionary decision making, and such decision making is itself subject to CEQA, the analysis of growth-inducing effects is not intended to determine site-specific environmental impacts and specific mitigation for the potentially induced growth. Rather, the discussion is intended to disclose the potential for environmental effects to occur more generally, such that decision makers are aware that additional environmental effects are a possibility if growth-inducing projects are approved. The decision of whether impacts do occur, their extent, and the ability to mitigate them is appropriately left to consideration by the agency responsible for approving such projects at such times as complete applications for development are submitted.

5.2.1 Growth Variables

The timing, magnitude, and location of land development and population growth in a community or region are based on various interrelated land use and economic variables. Key variables include regional economic trends, market demand for residential and nonresidential uses, land availability and cost, the availability and quality of transportation facilities and public services, proximity to employment centers, the supply and cost of housing, and regulatory policies or conditions. Because the General Plan of a community defines the location, type, and intensity of growth, it is the primary means of regulating development and growth in California.

5.2.2 Growth-Inducing Impacts of the Project

DIRECT GROWTH-INDUCING IMPACTS ASSOCIATED WITH POPULATION GROWTH

Implementation of the project would foster short-term and long-term economic growth within the City of Lincoln (City) as a result of new construction and increased residential units. Construction would likely begin in late fall 2016 and extend for approximately 36 months. During construction, the estimated peak level of construction workers at any given time is estimated to be approximately 163 workers. As described in Section 4.8, “Population and Housing,” a large number of people are employed in the construction industry in the region. Therefore, it would be reasonable to expect that construction workers for the project would not relocate to the City for a temporary job. During operation, it is anticipated that approximately 1,490 new residents would occupy the onsite residences. Increased City resident levels are considered to result in direct growth-inducing effects. The environmental impacts associated with these direct growth-inducing effects are described throughout this EIR.

DIRECT GROWTH-INDUCING IMPACTS ASSOCIATED WITH REMOVAL OF BARRIERS TO POPULATION GROWTH

The project would remove barriers to population growth insofar as the project would require a General Plan Amendment from the City to amend existing land use designations from Business Park to Medium Density

Residential and Park and Open Space for the western portion of the property; Medium Density Residential to Low Density Residential and Park for a small area on the eastern portion of the property; Agriculture to Mixed Use for an area adjacent to Nicolaus Road; and an increase in the acreage designated as Open Space around the portion of the Markham Ravine tributary that traverses the site (see Exhibit 3-3 of this EIR). The project would eliminate an obstacle to growth through the extension and provision of utilities and services for residential uses on a site that was previously used for industrial uses (i.e., former wastewater treatment plant), including extension of water service and pipelines, wastewater collection systems, and roadways.

The project would directly connect to existing utility infrastructure (water, wastewater, natural gas, and electricity) and would not facilitate additional development through expansion of regional facilities (e.g., water treatment plants, wastewater treatment plants, electrical substations). However, implementation of the project would affect service level, facility capacity, and infrastructure demand, potentially resulting in the need for expansion of existing public services and utility facilities. Removal of these barriers related to City planning and physical infrastructure would result in direct growth-inducing effects. The environmental impacts associated with these direct growth-inducing effects are described throughout this EIR.

OTHER EMPLOYMENT GROWTH AND OTHER ECONOMIC-RELATED GROWTH IMPACTS

Vacancy rates are an indicator of housing supply and demand. Low vacancy rates influence greater upward price pressures and higher vacancy rates indicate downward price pressures. A five to six percent vacancy rate is generally considered healthy. According to the 2010 US Census, approximately six percent of Lincoln housing units (883 units) were vacant (City of Lincoln 2013). The vacancy rate in Lincoln was lower than that of Placer County as a whole, which had a vacancy rate of 13 percent. Among vacant units in Lincoln, approximately 26 percent were for sale and 14 percent were for rent. Thus, the City is currently considered to have a healthy vacancy rate, while Placer County is considered to have a high vacancy rate overall (i.e., low demand for housing).

The project is a proposed master-planned residential community development, adjacent to existing residential development and undeveloped, vacant land. Implementation of the project requires re-designation of approximately 159.2 acres of land that is primarily designated for a mix of business/professional, residential, and agricultural uses. The site would also be rezoned from an industrial district to residential, commercial, and public facility, parks and recreation, open space-recreation, and open space – conservation districts. Homebuyers associated with the project are anticipated to originate from areas outside of the City and possibly the County or nearby cities and counties, because there is not a substantial demand for housing in the City and County (i.e., vacancy rates are considered to be healthy and high, respectively). Job growth projections and perceived demands are based on assumptions related to increased population growth. Thus, because the project would increase housing and population levels within the City, greater than anticipated in the General Plan, the project would facilitate the need for new employment, as well as goods and services (e.g., restaurants, grocery, gas stations). Facilitation of new employment, goods, and services would result in increased economic growth within the City and would be considered an indirect growth-inducing effect. Potential secondary effects of growth could include environmental consequences, such as conversion of open space to developed uses, increased demand on community and public services and infrastructure, increased traffic and noise, degradation of air and water quality, or degradation or loss of plant and wildlife habitat.

5.3 SIGNIFICANT AND IRREVERSIBLE CHANGES

CEQA requires that EIRs assess whether the project would result in significant irreversible changes to the physical environment. The State CEQA Guidelines discuss three categories of significant irreversible changes that should be considered. Each is addressed below. Although the project would require commitment of resources, these environmental changes are not considered significant for the purposes of this analysis.

5.3.1 Changes in Land Use That Commit Future Generations

Site preparation, construction, and operation of the project would irreversibly commit future generations to a suburban land use on 159.2 acres of the 194.2-acre project site. Markham Ravine would be preserved as part of a continuous open space corridor and no changes or development activity are proposed within the 35-acre parcel within the southeastern portion of the project site.

5.3.2 Irreversible Damage from Environmental Accidents

No significant environmental damage, such as accidental spills or explosion of a hazardous material, is anticipated with development of the proposed residential project. The use of hazardous materials beyond standard construction supplies and household hazardous waste is not proposed.

5.3.3 Consumption of Nonrenewable Resources

Consumption of nonrenewable resources includes increased energy consumption, conversion of agricultural lands, and lost access to mining reserves. Agricultural and mineral resources are not present on the project site. As such, the development of the property would not result in conversion of agricultural lands or loss of access to mineral resources.

Project construction would consume fossil fuels and other non-renewable or slowly renewable resources through the operation of vehicles and equipment for site grading and construction activities. Other resources, including materials such as wood products, metals, cement, asphalt and other products, would be used or consumed during project construction or will be permanently committed as project materials. Operation of the project would also require additional electricity, water, and natural gas; however, the scale of such consumption would be typical for a residential development of this size.

ENERGY CONSERVATION

Appendix F of the *CEQA Guidelines* requires that an EIR include information on the energy implications of a project, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. Please refer to *Impact 4.9-4: Result in inefficient and wasteful consumption of energy* (located in Section 4.9 of this EIR) for project-specific energy calculations. Implementation of the project would use more energy than the existing onsite conditions. Implementation of the project would consume a large amount of energy in both the short-term during project construction and in the long-term during project operation. The project would consume energy in four forms: (1) the fuel energy consumed by construction vehicles; (2) bound energy in construction materials, such as asphalt, steel, concrete, pipes, and manufactured or processed materials such as lumber and glass; (3) ongoing energy required for interior and exterior lighting, heating/ventilating/air conditioning (HVAC), computer and home electronics systems, electric cooking ranges, refrigerators, freezers, and security systems; and (4) the consumption of transportation energy.

Construction Vehicles. Fossil fuels used for construction vehicles and other energy consuming equipment would be used during project construction. Standard construction practices discourage unnecessary idling or through the operation of poorly maintained equipment.

Construction Materials. The incremental increase in the use of energy bound in construction materials such as asphalt, steel, concrete, pipes and manufactured or processed materials such as lumber and gas would not substantially increase demand for energy compared to overall local and regional demand for construction materials. Construction materials would not be used in a wasteful manner to reduce project construction costs.

Operational Energy Requirements. In accordance with California Energy Code Title 24, the project would not use energy in a wasteful manner. Minimum efficiency standards for household appliances, water and space heating and cooling equipment and insulation for doors, pipes, walls and ceilings would ensure that the project would not use energy in a wasteful manner.

Transportation Energy. Implementation of the project would require additional energy for transportation uses within the City of Lincoln. State and federal regulations regarding fuel efficiency standards for vehicles in California are designed to reduce wasteful, unnecessary and inefficient use of energy for transportation. The project would include pedestrian sidewalks and trails, which promotes non-auto travel. The inclusion of parks and open space areas would also reduce the energy consumption related to vehicle miles traveled by providing walkable and bikeable access to outdoor recreation facilities.

Mitigation Measures

No mitigation is required.

5.4 SIGNIFICANT AND UNAVOIDABLE IMPACTS

Section 15126.2(b) of the State CEQA Guidelines requires that an EIR describe any significant impacts that cannot be avoided, even with the implementation of feasible mitigation measures.

Implementation of the project would result in significant and unavoidable impacts related to traffic and cumulative emissions of ozone precursors.

The project site plan does not show construction of a sidewalk on the south side of Nicolaus Road west of Waverly Drive along the frontage of the Western Placer Unified School District bus yard. Consequently, pedestrians who desire to enter/exit the project via Street 18 or the mixed-use parcel would not have a continuous designated pedestrian facility to allow them to walk to/from the east toward schools, businesses, and shops. Further, it is noted that General Plan Policy T-5.9 encourages development projects to include design of pedestrian access that enables residents to walk from their homes to places of work, recreation, and shopping. While the project would provide pedestrian access for a majority of the project site, pedestrian facilities are limited along the southern side of Nicholas Road west of Waverly Drive and would limit people from accessing areas east of the project site. This would be a potential conflict with General Plan Policy T-5.9 and result in an unmet pedestrian facility demand for the site. As mitigation, the project applicant shall demonstrate to the City's satisfaction that it has coordinated with Western Placer Unified School District to investigate, design, and if feasible, construct a sidewalk that would extend along the south side of Nicolaus Road west of Waverly Drive along the frontage of the Western Placer Unified School District bus yard. This would occur prior to grading. Construction of a sidewalk in this area appears feasible based on the 10- to 15-foot setback of the bus yard from Nicolaus Road and no sensitive habitats are located along this frontage alignment. However, this area has some changes in grades, which could pose challenges to constructing a sidewalk. Further, this alignment is subject to the control of Western Placer Unified School District and not subject to the control of the City. Due to the uncertainty regarding the feasibility of construction of this improvement (based on unknown right-of-way availability and physical constraints such as grade), it cannot be concluded at this time that this mitigation measure would reduce this impact to a less-than-significant level.

6 PROJECT ALTERNATIVES

6.1 CALIFORNIA ENVIRONMENTAL QUALITY ACT REQUIREMENTS

The State CEQA Guidelines require analysis of a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the project's basic objectives and avoid or substantially lessen any of the significant effects of the project (Section 15126.6[a]). The range of potentially feasible alternatives required in an EIR is governed by a "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The potential feasibility of an alternative may be determined based on a variety of factors, including economic viability, availability of infrastructure, and other plans or regulatory limitations. Specifically, Section 15126.6(f) (1) of the State CEQA Guidelines states, in part:

Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent). No one of these factors establishes a fixed limit on the scope of reasonable alternatives.

In determining what alternatives should be considered in the EIR, it is important to acknowledge the objectives of the project, the project's significant effects, and unique project considerations. These factors are crucial to the development of alternatives that meet the criteria specified in Section 15126.6(a). The State CEQA Guidelines further require that the alternatives be compared to the project's environmental impacts and that the "no project" alternative is considered (Section 15126.6[d] [e]).

An EIR need not evaluate the environmental effects of alternatives in the same level of detail as the project, but must include enough information to allow meaningful evaluation, analysis, and comparison with the project. The requirement that an EIR evaluate alternatives to the project or alternatives that address the location of the project is a broad one; the primary intent of the alternatives analysis is to disclose other ways that the objectives of the project could be attained while reducing the magnitude of, or avoiding, the environmental impacts of the project. Alternatives that are included and evaluated in the EIR must be feasible alternatives. However, the Public Resources Code and the CEQA Guidelines direct that the EIR need "set forth only those alternatives necessary to permit a reasoned choice." The ultimate determination as to whether an alternative is feasible or infeasible is made by the lead agency's decision-making body (See PRC Section 21081[a] [3].)

6.1.1 Key Considerations

The objectives of the project are provided in Chapter 3, "Project Description." Potential project alternatives carried forward for analysis were selected based on their ability to meet most of the project's stated objectives; avoid or reduce the magnitude project-specific significant and unavoidable effects; or lessen the mitigation requirements of the project. The feasibility of alternatives was also considered.

6.2 ALTERNATIVES DISMISSED FROM DETAILED EVALUATION

The following describes other alternatives considered by City of Lincoln, but dismissed from further evaluation in this Draft EIR, with a brief description of the reasons for their rejection.

6.2.1 Offsite Alternative

The possibility of an offsite location was considered as an alternative to the project; however, one of the objectives of the project is to repurpose the project site for residential and open space land uses consistent with closure certification from the Central Valley Regional Water Quality Control Board. In addition, the applicant does not currently hold vacant property that could be feasibly developed with a project of this size or that that would meet most of the primary project objectives. It is also noted that the project site is surrounded by existing residential development, sewer connections, and roadway facilities. There are currently no contiguous sections of vacant land within the City's legal boundary that are both available for residential uses and large enough to accommodate 575 single-family units (Prosser, pers. comm., 2016). Locating 575 units on a different site or within a number of smaller sites would not likely result in substantial reduction or avoidance of any project-related impacts to natural resources as the site would likely be located on land that is less disturbed than the project site (i.e., a site that has been substantially disturbed by the operation of a former wastewater treatment plant). For these reasons, the off-site alternative was dismissed from detailed evaluation.

6.2.2 No Project, General Plan Buildout

State CEQA Guidelines Section 15126.6(e)(1) requires that the no project alternative be described and analyzed "to allow decision makers to compare the impacts of approving the project with the impacts of not approving the project." The no project analysis is required to discuss "the existing conditions at the time the notice of preparation is published...as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services" (Section 15126.6[e][2]). CEQA states that if the project is a development project on identifiable property, the "no project" alternative is the circumstance under which the project does not proceed. Here the discussion would compare the environmental effects of the property remaining in its existing state against environmental effects which would occur if the project is approved. This "No Project, No Development" scenario is discussed in detail below. However, CEQA further indicates that where failure to proceed with the project will not result in preservation of existing environmental conditions, the analysis should identify the practical result of the project's non-approval and not create and analyze a set of artificial assumptions that would be required to preserve the existing physical environment. In other words, if disapproval of the project under consideration would result in predictable actions by others, such as the proposal of some other project, this "no project" consequence should be discussed (Section 15126.6[e][3][B]).

Exhibit 3-3 of this EIR (in Chapter 3, "Project Description") identifies the existing and proposed land uses designations for the project site, as designated by the City of Lincoln General Plan Land Use and Circulation Diagram (2014). The project site has been designated for urban development in the City's General Plan and Zoning Ordinance. However, development of the project as proposed would not be consistent with some of the current land use designations and zoning of the project site. Therefore, an amendment to land use designations and rezoning of 159.2 acres of the project site is proposed. It is reasonable to expect that if the project were not approved, the project site would be developed. Because there are no other development plans pending for the site, it is assumed that any future development would be consistent with the General Plan land use designation. The General Plan Summary Table in Exhibit 3-3 of this EIR identifies differences between the existing and proposed land use designation acreages. Compared to the project, this alternative would result in 79.8 fewer residential acreages onsite but would add 98.7 acres of BP-Business Professional land uses to the site. This alternative would also result in substantially fewer acres designated as Open Space (i.e., 19.5 acres vs. 49.7 acres). Therefore, it is assumed that the No Project, General Plan Buildout Alternative would result in more development of the site and greater overall environmental impacts than the project. Specifically, this alternative would have greater development of onsite habitat including sensitive habitats along the ravine; greater visual disparity between the project site and surrounding development as business park development would be introduced into a primarily residential context; and potentially greater

operational impacts including noise, traffic trips, air, and GHG emissions associated with the business professional uses. In light of these potential impacts, the fact that this alternative would not achieve the stated project objectives, and that none of the projects significant impacts would be reduced or eliminated, a thorough comparative discussion is not. Therefore, the No Project, General Buildout Alternative is dismissed from detailed evaluation below.

6.3 EVALUATION OF ALTERNATIVES

The following alternatives to the project are evaluated in detail, as described below:

- ▲ Alternative 1: No Project, No Development
- ▲ Alternative 2: Reduced Development

For each alternative, a brief discussion of its principal characteristics is followed by an analysis of the alternative. The emphasis of the analysis is on a determination of whether or not the alternative would reduce, eliminate, or create new significant impacts, as well as the alternative's relative beneficial effects compared to the project and how well the alternative meets each of the project objectives. This section concludes with a discussion of the environmentally superior alternative.

6.3.1 Alternative 1: No Project, No Development

CEQA requires consideration of the No Project alternative, which addresses the impacts associated with not moving forward with the project. The purpose of analyzing the No Project alternative is to allow decision-makers to compare the impacts of the project versus no project. CEQA indicates that in certain instances, the no project alternative means 'no build' wherein the existing environmental setting is maintained. However, where failure to proceed with the project will not result in preservation of existing environmental conditions, the analysis should identify the practical result of the project's non-approval and not create and analyze a set of artificial assumptions that would be required to preserve the existing physical environment." (Section 15126.[e][3][B]). These latter conditions were evaluated above under Section 6.2.2, No Project, General Plan Buildout. Although preservation of the existing undeveloped site condition is considered less likely than future development of the site, examination of the comparative environmental impacts between the project and a "No Project, No Development" scenario is useful. Whereas the Draft EIR focuses on the direct, indirect, and cumulative impacts of the project, the analysis of the No Project, No Development Alternative considers the effects of leaving the project site in its current condition. In general, the site consists primarily of disturbed, non-native grasslands and is traversed by an unnamed tributary to Markham Ravine that runs from the eastern end of the site to the northwestern edge. A soil berm is located along the west and north side of the ravine and the stream corridor is associated with riparian woodlands, freshwater marshes, seasonal wetlands, and black willow thickets. A 35-acre mitigation site is located in the southeast corner of the project site where seasonal wetlands, riparian woodlands, and excavated ponds were created along the stream (Entrix 1991).

EVALUATION OF ENVIRONMENTAL EFFECTS

Aesthetics

Maintaining existing site conditions under the No Project, No Development Alternative would result in no change to the visual character of the site and no views of or from the site would be obstructed. Further, the site would remain in its current dark condition, as no lighting would be installed onsite. Although the project would result in less than significant impacts related to aesthetics, the No Project, No Development Alternative would result in no changes to the existing visual condition. Overall, impacts would be less under this alternative.

Air Quality

The No Project, No Development Alternative would not generate any air pollutant emissions from construction activities or from operation of any development. Although implementation of mitigation measures would reduce short-term construction generated emissions under the project, this alternative would result in no environmental effect related to air quality. Air quality impacts would be less under this alternative.

Biological Resources

Under the No Project, No Development Alternative no potential impacts to special-status species or sensitive habitats would occur as no development would occur, whereas the project would result in ground-disturbance and development of the site that could adversely affect nesting raptors, special-status bird (non-raptor) nests, and native oak trees. Although implementation of recommended mitigation measures would reduce these project-related impacts to a less-than-significant level, the No Project, No Development Alternative would result in no environmental effect. Biological impacts would be less under this alternative.

Cultural and Paleontological Resources

Implementation of the No Project, No Development Alternative would not disturb any known or unknown cultural resource, paleontological resources, or undisturbed human remains because no development would occur. However, ground-disturbing activities associated with the project would result in potential impacts to previously unknown paleontological resources, cultural resources, or undocumented human remains. Although implementation of mitigation measures would reduce project-related impacts to a less-than-significant level, the No Project, No Development Alternative would result in no environmental effect. Cultural resources impacts would be less under this alternative.

Geology and Soils

No changes to the site geology or soils would occur under the No Project, No Development Alternative. Furthermore, no structures would be developed, and no risk would occur related to seismicity or unstable soils. By comparison, the project would result in less-than-significant impacts related to soil erosion, but only with implementation of Mitigation Measure 4.6-1 (see Section 4.6, "Hydrology and Water Quality," of this Draft EIR) and Mitigation Measure Haz-1 (see Chapter 1 of this Draft EIR and Section 2.8 of the Initial Study Checklist in Appendix A). Geology and soils impacts would be less under this alternative.

Greenhouse Gas Emissions

Under the No Project, No Development Alternative no additional GHG emissions would be generated beyond existing conditions. By contrast, the project (mitigated) would annually generate 7,892 metric tons of carbon dioxide equivalent (MT CO₂e/year) at buildout. Although this level of GHG emission is not considered a significant impact, it is greater than the emissions generated under existing conditions. GHG emissions under this alternative would be less than the project.

Hazards and Hazardous Materials

Under the No Project, No Development Alternative, it is assumed the City would continue to decommission the site (i.e., a former wastewater treatment facility) and obtain final regulatory closure. However, no soil disturbance beyond existing decommissioning activities would occur on the site under this alternative. Therefore, this alternative would not disturb soils where hazards could exist and expose residents or construction workers to potential hazards. Overall, impacts would be less under this alternative.

Hydrology and Water Quality

Implementation of the No Project, No Development Alternative would result in no changes to the existing hydrology of the site. Although any portions of the project site subject to concentrated runoff, including Markham Ravine, or areas with unprotected piles of bare soil, would be susceptible to erosion, the site is generally gently undulating slopes, and it is assumed that, overall, the site's existing condition would not result in substantial sedimentation during storm events. No increased incidence of flooding would occur under this alternative. Project construction activities would involve extensive grading and movement of soil,

which could result in erosion and sedimentation, and discharge of other nonpoint source pollutants in onsite stormwater that could then drain to offsite areas and degrade local water quality. Mitigation Measure 4.6-1 would minimize short-term construction-related water quality degradation. Furthermore, the project includes construction of three onsite detention basins that would control runoff and minimize the likelihood for localized flooding. Nonetheless, because of the lack of site disturbance, hydrology and water quality impacts would be less under this alternative.

Land Use and Planning

The No Project, No Development Alternative would not result in conflicts with existing residential land uses surrounding the project site because the relationship between the undeveloped property and the residential neighborhoods would remain unchanged. The project site would continue to be vacant. While land use and planning impacts were less than significant for the project, overall impacts would be less under this alternative.

Noise

The No Project, No Development Alternative would not generate any short-term or long-term noise. By comparison, construction of the project would result in less-than-significant impacts related to noise, but only with implementation of Mitigation Measure 4.7-1 (see Section 4.7, Noise, of this Draft EIR). The No Project, No Development Alternative would avoid significant environmental effects associated with the project and impacts would be less.

Population and Housing

The No Project, No Development Alternative would not result in new housing or generate additional population, nor would it result in direct or indirect impacts associated with population growth. While the project's population and housing impacts were determined to be less than significant, overall, this alternative would result in less impact.

Public Utilities, Services, and Water Supply

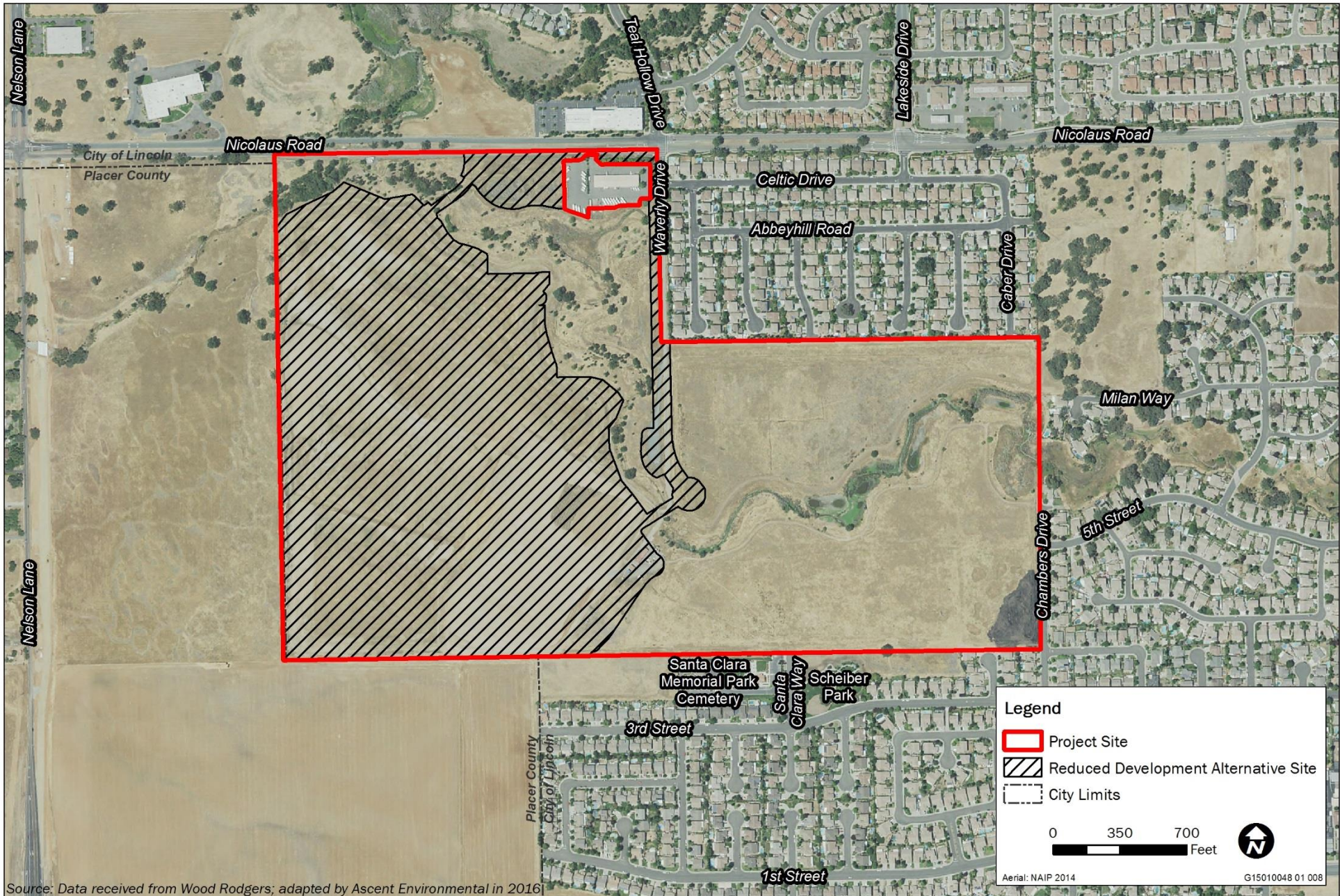
Under the No Project, No Development Alternative, no increased demand for public utilities would occur. The project, on the other hand, would generate additional demand for water supply, wastewater treatment, solid waste disposal, and electricity and gas service. All of these services can be provided to the project without expansion of existing facilities. However, the No Project, No Development Alternative would not generate any demand for public services beyond existing conditions. Therefore, public utilities, services, and water supply impacts would be less under this alternative.

Traffic and Transportation

Under the No Project, No Development Alternative, no traffic would be generated. Waverly Drive would not be extended, and the extension of Aberdeen Lane and Caber Drive to the site would not occur. Because no traffic would be generated by the No Project, No Development Alternative, no impacts to existing roadway or intersection operation, pedestrian facilities, public transit facilities, or from construction-related traffic would occur. By comparison, the project would generate additional traffic and would have a significant and unavoidable impact on pedestrian facilities and cumulative impacts to Caltrans intersections. Traffic and transportation impacts would be less under this alternative.

6.3.2 Alternative 2: Reduced Development

The Reduced Development Alternative assumes development of the project site would be limited to approximately 96 acres in the western portion of the site (Exhibit 6-1). Development under this Alternative would be the same as the master-planned residential community and amenities proposed under the project but at a smaller scale (i.e., approximately 30% smaller than the project). Under this alternative, it is assumed the eastern portion of the project site and the 35-acre "Remainder Area" would remain undeveloped.



Source: Data received from Wood Rodgers; adapted by Ascent Environmental in 2016

Exhibit 6-1

Reduced Development Alternative



Removing proposed development in the eastern portion of the project site and providing the same project at a smaller scale in the western portion of the site would reduce the overall development footprint at the site resulting in less grading and soil disturbance. Overall, less roads, housing units, and infrastructure improvements would be constructed. Similar to the project, the Reduced Development Alternative would include extension of Waverly Drive into the western portion of the project.

EVALUATION OF ENVIRONMENTAL EFFECTS

Aesthetics

The Reduced Development Alternative would not develop or alter existing site topography in the eastern portion of the site. From the adjacent Glenmoor subdivision, views of the project site looking south would be unchanged and views of the site looking west of Waverly Drive would be of open space with residential uses in the more distant background. While implementation of the project would result in less-than-significant impacts related to scenic vistas, visual character, and light and glare; the Reduced Development Alternative would result in no change to the existing visual character of the eastern portion of the project site. Further, because development of LDR adjacent to Waverly Drive would not occur under this alternative, foreground views of the site from Waverly Drive and the adjacent subdivision would be of open space with views of residential development in the background. However, this alternative would provide a development that is consistent with the surrounding urban environment. Overall, less intense development would occur onsite and there would be a gradual transition of views from surrounding residential development. Aesthetic impacts would be less under this alternative.

Air Quality

With approximately 30 percent fewer units than the project, the Reduced Development Alternative would require less construction and would generate fewer construction-related emissions than the project. The Reduced Development Alternative would also generate fewer vehicle trips and would, therefore, generate fewer operations-related emissions than the project. The project's short-term construction generated emissions under the project would be reduced to a less-than-significant level by implementation of mitigation measures. Similar mitigation measures would likely be required for the Reduced Development Alternative and could reduce impacts to less-than-significant levels. Nonetheless, impacts would be less under this alternative.

Biological Resources

The Reduced Development Alternative would result in less soil disturbance and limit development to the western portion of the project site, providing increased opportunity for preservation of existing onsite vegetation, trees, and species protection. However, even though the amount of soil disturbance would be reduced, construction of the Reduced Development Alternative would not likely completely avoid all of the potential sensitive resources onsite and would likely require similar mitigation measures to the project for potential impacts to nesting raptors, special-status bird (non-raptor) nests, and protected native oak trees. Similar to the project, implementation of recommended mitigation measures would reduce these project-related impacts to a less-than-significant level. Overall, impacts would be similar but slightly less than the project.

Cultural and Paleontological Resources

No known cultural or paleontological resource are identified on the project site. Regarding unknown cultural and paleontological resources, although the Reduced Development Alternative would require less ground disturbance, it would still result in construction activities that would disturb soils and would require the same mitigation measures for protecting unknown cultural and paleontological resources. Overall, impacts would be similar to the project.

Geology and Soils

Under the Reduced Development Alternative, there would be approximately 30 percent fewer homes than would be developed under the project. All development would be limited to the western portion of the project site and the Reduced Development Alternative would require less soil movement and more preservation of the site's existing undeveloped condition. The project would result in less-than-significant impacts related to soil erosion with implementation of mitigation measures. Because this alternative would result in similar potential for erosion impacts and would require similar mitigation to reduce these impacts, overall, impacts would be similar,

Greenhouse Gas Emissions

The Reduced Development Alternative would require less construction and would generate fewer construction-related GHG emissions than the project. The Reduced Development Alternative would also generate fewer operational vehicle trips and would generate less demand for energy. Although the project would result in a less-than-significant impact related to GHG, the Reduced Development Alternative would emit less GHG than the project. Overall, GHG impacts would be less.

Hazards and Hazardous Materials

Until the City obtains final regulatory closure certification from Central Valley RWQCB and any other regulatory agency with oversight of the former facility activities on the project site, it is assumed that the potential for people to be exposed to contaminated soil during project construction would be potentially significant. While the Reduced Development Alternative would require less soil disturbance than the project, this alternative would still disturb soils where hazards could exist; therefore, similar mitigation measures as recommended for the project would be required to reduce potential impacts related to exposure of contaminated soil during project construction. Overall, impacts would be similar under this alternative.

According to the Placer County Airport Land Use Compatibility Plan (Placer County ALUP), the project site is located within Compatibility Zone C2 for Lincoln Regional Airport, approximately 0.8 mile northwest of the airport's primary runway. Similar to the project, this alternative would require project approval from the Airport Land Use Commission (Commission) and review for consistency with the Placer County ALUP. Within Compatibility Zone C2, aircraft typically overfly these areas at an altitude of 1,000 to 1,500 feet above ground level on visual approaches. Safety is a concern only with regard to uses involving high concentrations of people and particularly risk-sensitive uses such as schools and hospitals (PCTPA 2014: 6-3 and 6-4). For Lincoln Regional Airport, the Placer County ALUP's intensity criteria for single-family residential home land uses within Compatibility Zone C is a maximum sitewide average intensity of 300 people per acre and maximum single-acre intensity of 1,200 people per acre. Under this alternative, approximately 30 percent fewer residences (i.e. 173 fewer homes) would be constructed on a 96-acre site. It is estimated that sitewide density under this alternative would be roughly 11 people per acre, which would be well below the lowest sitewide intensity standard in the Placer County ALUP. Similar to the project, this Alternative would be consistent with the Placer County ALUP's land use compatibility and safety standards. Overall, impacts would be similar under this alternative.

Hydrology and Water Quality

Under the Reduced Development Alternative, there would be fewer homes and roadways than would be developed under the project and development would not occur on the eastern portion of the project site. Therefore, the Reduced Development Alternative would include less overall impervious surface area than the project, which would increase surface water infiltration and reduce sedimentation and urban pollutants in stormwater runoff. The Reduced Development Alternative would still require a drainage system, including onsite detention basins, for development in the western portion of the site, and construction of the alternative would still require mitigation measures (similar to the project) to minimize short-term construction-related water quality degradation. Furthermore, the project includes construction of three onsite detention basins that would control runoff and minimize the likelihood for localized flooding, and some or all of these basins may still be required under this alternative. Overall, hydrology and water quality impacts would be less than the project under this alternative.

Land Use and Planning

Similar to the project, the Reduced Development Alternative would not be consistent with the City's General Plan designations and zoning for the site, and, therefore, General Plan and zoning amendments would be required. Also similar to the project, single-family residential use would be consistent with the existing surrounding single-family development. Impacts related to land use compatibility would be considered similar to the project.

Noise

The Reduced Development Alternative would result in less development of the project site and would require less site preparation and construction. With no development in the eastern portion of the site, onsite construction areas would be located further away from existing sensitive receptors (i.e., surrounding subdivisions). This could possibly avoid a potentially significant impact of the project related to construction noise; however, it is uncertain at this time. Noise impacts associated with the Reduced Development Alternative would be less than the project.

Population and Housing

The Reduced Development Alternative assumes 173 fewer housing units which would result in a population increase of 1,043 residents (i.e., 447 fewer residents than the project). Similar to the project, the Reduced Development Alternative would result in a less-than-significant impact to direct or indirect impacts associated with population growth and would not displace existing housing or residences. Overall, impacts would be similar.

Public Utilities, Services, and Water Supply

While the size of the development would be reduced, the Reduced Development Alternative would result in increased demand for public services. Similar to the project, the demand for public services could be accommodated without the need for expanding or constructing new facilities as was described for the project. Although the Reduced Development Alternative would also result in less demand for water supply compared to the project, it would still require the same necessary treatment and distribution infrastructure planned by the City. With approximately 30 percent fewer units than the project, the Reduced Development Alternative would generate substantially less demand for energy, water, wastewater treatment, and solid waste disposal than the project. Overall, impacts under this alternative would be less.

Traffic and Transportation

With 30 percent fewer units than the project, the Reduced Development Alternative would generate less traffic than the project; however, because of existing roadway operation levels, it would likely not eliminate the need for mitigation measures identified for the project (i.e., pedestrian facilities, public transit facilities, or construction-related traffic) or change the significant and unavoidable impact conclusion for pedestrian facilities and cumulative impacts to Caltrans intersections. Nonetheless, the overall traffic impacts under this alternative would be less.

6.3.3 Comparison of Alternatives

Table 6-1 summarizes the environmental analyses provided above for the project alternatives.

Table 6-1 Comparison of the Environmental Impacts of the Alternatives in Relation to the Project			
Resource Area	Project	No Project Alternative	Reduced Development Alternative
Aesthetics	Less than Significant	Less	Less
Air Quality	Less than Significant (with mitigation)	Less	Less
Biological Resources	Less than Significant (with mitigation)	Less	Similar but Slightly Less
Cultural and Paleontological Resources	Less than Significant (with mitigation)	Less	Similar
Geology and Soils	Less than Significant (with mitigation)	Less	Similar
Greenhouse Gas Emissions	Less than Significant	Less	Less
Hazards and Hazardous Materials	Less than Significant	Less	Similar
Hydrology and Water Quality	Less than Significant	Less	Less
Land Use and Planning	Less than Significant	Less	Similar
Noise	Less than Significant (with mitigation)	Less	Less
Population and Housing	Less than Significant	Less	Similar
Public Utilities, Services, and Water Supply	Less than Significant (with mitigation)	Less	Less
Traffic and Transportation	Significant and Unavoidable	Less	Less

Source: Compiled by Ascent Environmental in 2016

6.3.4 Environmentally Superior Alternative

CCR Section 15126.6 suggests that an EIR should identify the “environmentally superior” alternative. “If the environmentally superior alternative is the ‘no project’ alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.”

The No Project Alternative is the environmentally superior alternative, because all of the significant impacts of the project would be avoided. However, the No Project Alternative would not meet any of the project’s objectives, including development of a residential community onsite containing open space and a range of passive and active recreational amenities for community residents and the City.

With the Reduced Density Alternative, impacts to aesthetics, air quality, biological resources, greenhouse gas emissions, hydrology and water quality, noise, and traffic and transportation would be reduced, when compared to the project. Because it would result in less overall environmental impact than the proposed project, the Reduced Intensity Alternative would be considered environmentally superior. This alternative could also meet most of the project’s objectives.

Further, it should be noted that in a strong housing market, the reduction of housing units on the project site would likely result in demand for development of those units elsewhere in the City. It is also likely that residential development would occur within the eastern portion of the project site separately because it is currently designated for LDR and MDR land uses. This could result in other unknown environmental impacts, which could be less than, or greater than those associated with the proposed project.

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